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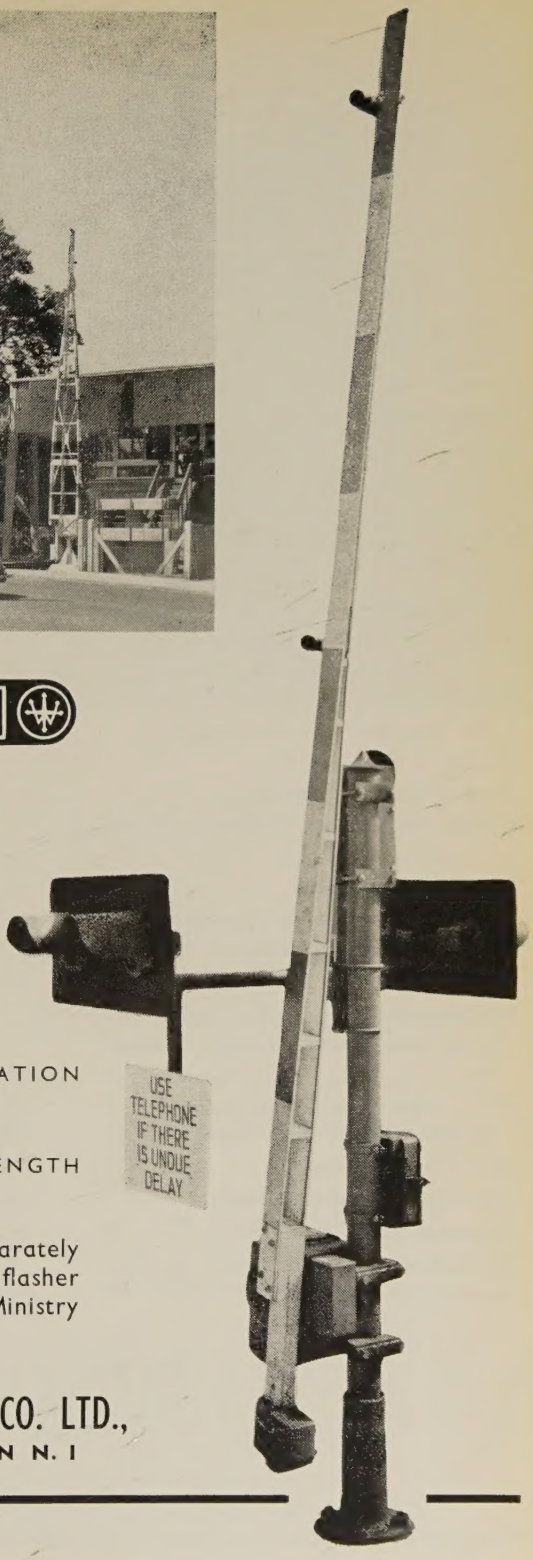
(English Edition)



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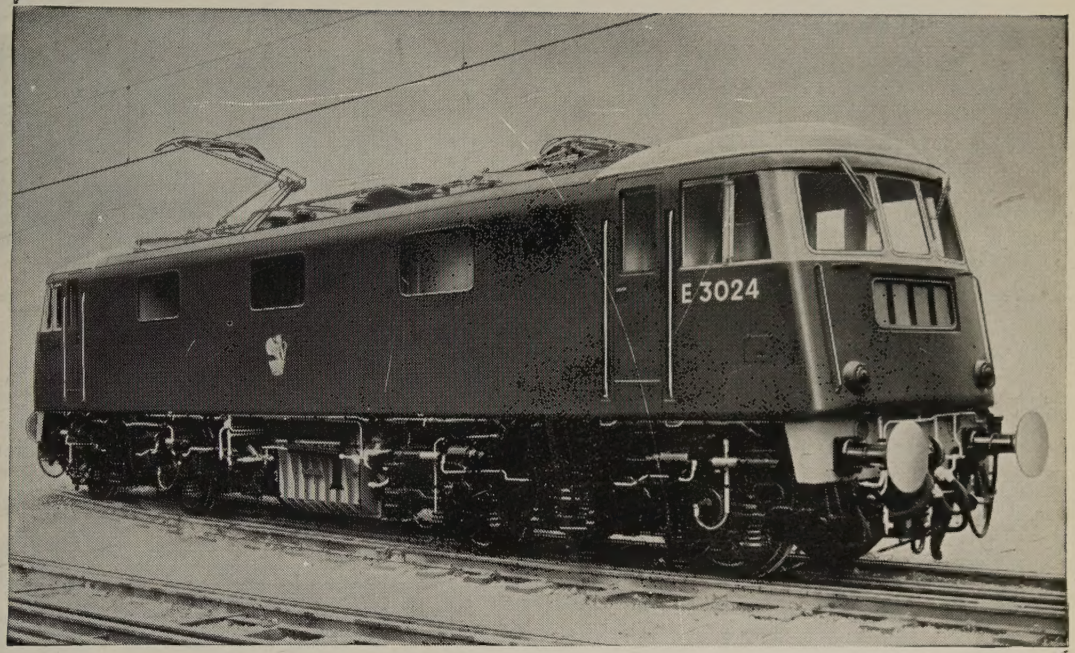

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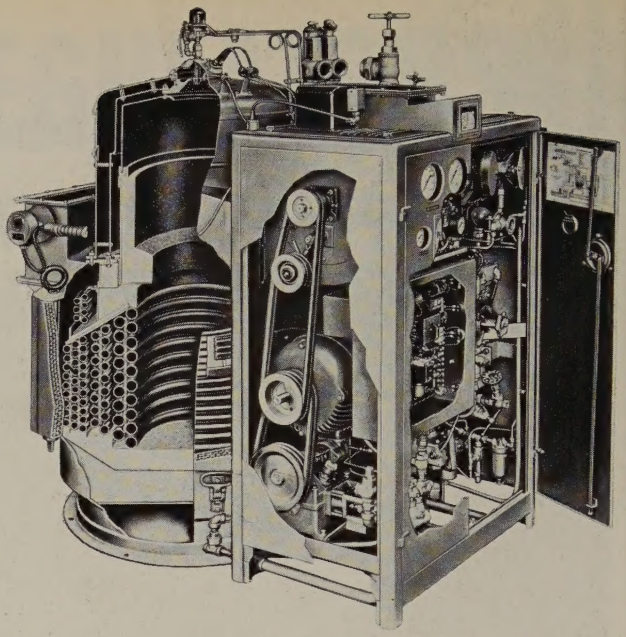

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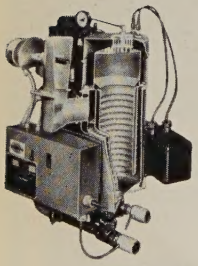

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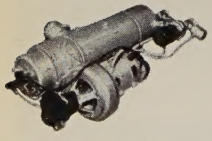

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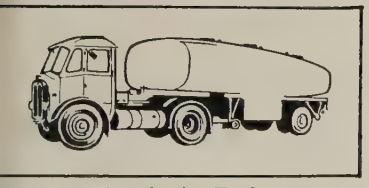

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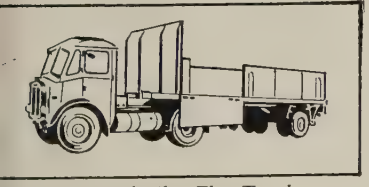

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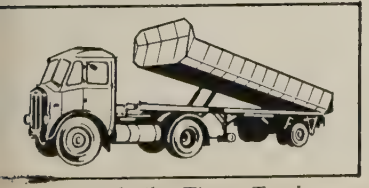

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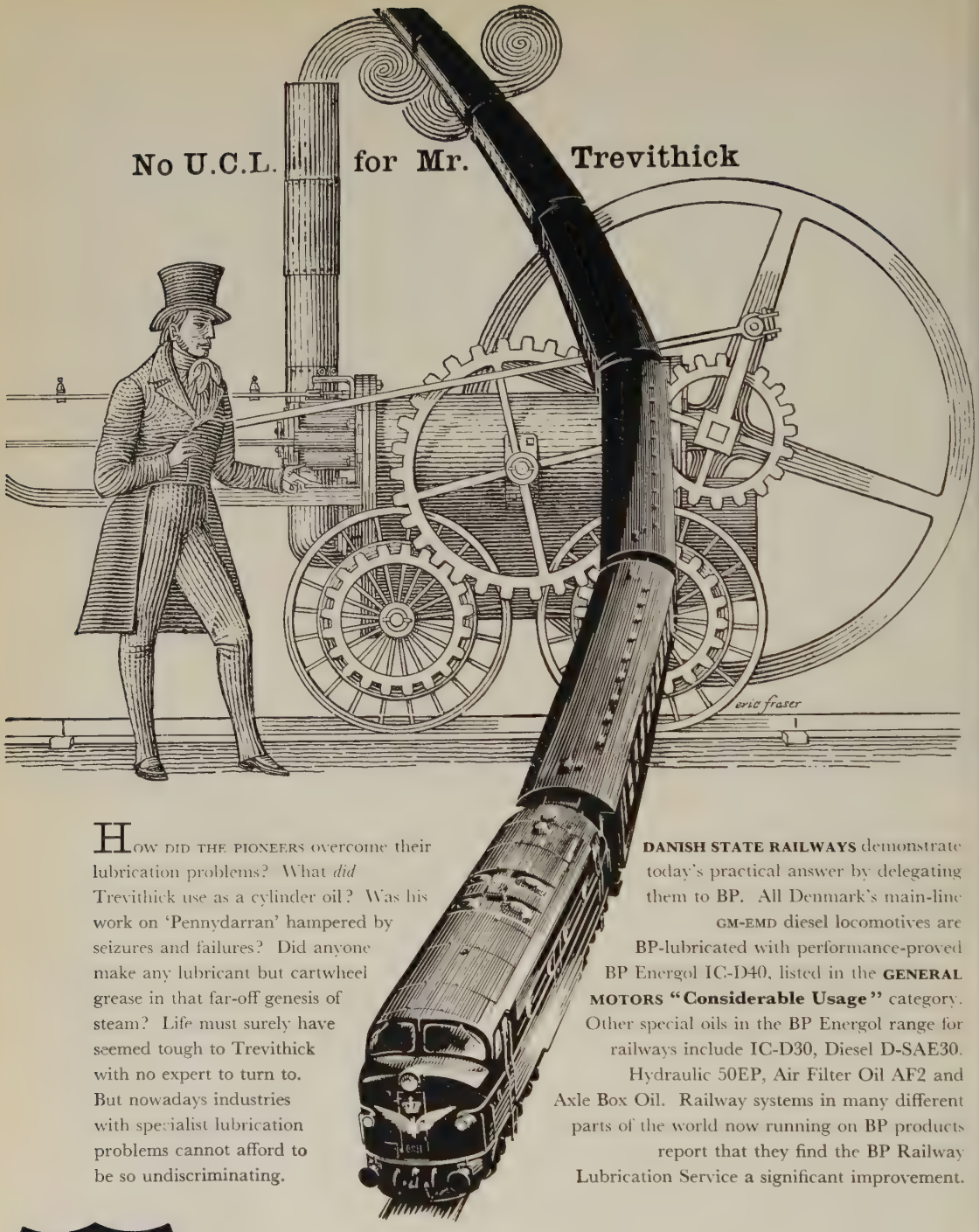

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(ENGLISH EDITION)

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Vol. XXXVII. — No. 12. December 1960.

BULLETIN
OF THE
INTERNATIONAL RAILWAY CONGRESS
ASSOCIATION
(ENGLISH EDITION)

[625 .23 (494)]

The new standard passenger coaches of the Swiss Federal Railways for internal service,

by F. Gerber, Dr. h.c.

Ingénieur en chef des Chemins de fer fédéraux suisses, à Berne.

When, in the early 1930's, our country was affected by the grave economic crisis and when, moreover, the competition of the private car became alarming, the Swiss Federal Railways examined the means and measures which might be taken to improve the passenger train services and to reduce their costs. Very fortunately, the electrification of the network had been so actively pursued in the time from 1925 to 1930 that it was now possible to haul 85 % of the traffic by electric traction. Circumstances were thus particularly propitious to the desired improvement of the passenger train timetables. At the same time, efforts were made to reduce the weight of the trains still further by using coaches of lightweight construction.

It is here intended, first of all, to discuss the considerations which led, even at that time, to the construction of four-axled lightweight vehicles and, secondly, to give a summary description of the technical solution adopted. We shall finally deal in greater detail with the most recent type of coach, known as « standard coach ».

The railway specifications envisaged, in particular, a maximum weight of 25 tons for a 3rd Class coach with 72 seats. This weight reduction appeared to be extremely important, at the outset, since the riveted or welded steel coaches of that time weighed 40 tons, and even more. It was expected however, that, due to the application of the principle of the self-supporting tubular girder, the desired objective could be attained.

These new lightweight coaches were destined to form rapid, light trains with high commercial speeds which would permit an increase in timetable density. Due to the topography of the country, the population density of the inhabited areas, and the multiplicity of railway lines, the network of the Swiss Federal Railways does not readily lend itself to high commercial speeds; it was therefore necessary to make use of all appropriate

technical means in order to increase the speed. In the sphere of traction, this means, first of all, a high acceleration and deceleration and, in consequence, a limitation in weight. But as the capacity of the trains must be adapted to operating requirements — which means, in our country, that the capacity must not be too low — the aim was to reduce the weight-per-seat ratio to a minimum. These considerations gave rise to the desire to have lightweight coaches available.

Smooth running was also a matter of great importance. The coaches were required to run smoothly at all speeds up to 125 km/h, and the coach body was not to show resonance vibrations during running. Moreover, the running stability in curves was not to give rise to any misgivings. It was hoped that, due to the light axle load, it might be possible to increase the speed through curves by 10 km/h so as to attain, e.g. a speed of 80 km/h in a curve of 280 m radius (this being the minimum radius on main lines). This speed is equal to $4.8 \sqrt{R}$, where R is the curve radius in metres.

At such speeds, and with a cant of 150 mm, only one-half of the centrifugal force is compensated. As far as track geometry is concerned, it was laid down from the outset that the gauges specified in the permanent way maintenance instructions should not be exceeded, and that the transition curves should satisfy the well-known conditions for shock-free running when entering and leaving curves.

It may be mentioned in passing that it has been the intention to apply the same principles to the design of powered vehicles. The light, rapid trains were to be hauled by lightweight railcars equipped with a luggage compartment and so constructed that they could run at the speeds for which the coaches were designed.

The Swiss Federal Railways entrusted the study of the project to Schweizerische Wagons- und Aufzüge A.G., Schlieren. A study was then made of the materials to be chosen and of the strength performance of certain parts of the construction. The problem of coach body vibration was also studied. To begin with, the use of aluminium figured in the foreground of the scheme. It was however soon apparent that this material was not suitable for the construction of a coach body, because the static and dynamic properties of the welded joints were not yet sufficiently known. Also, aluminium has a low modulus of elasticity. It would have been necessary to rate all the components rather conservatively, especially in regard to dynamic behaviour, buckling resistance and fatigue strength, so that the weight reduction would have been relatively insignificant. From the outset, the idea of a riveted design was discarded. On the other hand, much use was made of aluminium for the interior equipment of the coaches.

The studies also extended to the possibilities of using high-grade steels. In this respect, however, misgivings concerning the metallurgical structure of the weld zones and their influence on the elastic behaviour as well as the maintenance requirements of the workshops had a decisive influence.

It is well known that, since that time, great progress has been made with the electric welding of light metals and alloyed steels so that these considerations would no longer be quite so important to-day. At that time, however, they were perfectly valid and would have entailed the use of a mild steel with a tensile strength of about 37 kg/mm². The choice fell on a steel with good

to 22.70 m. Moreover, it was regarded as highly desirable that the new light-weight coaches should be able to work, without restriction, with the heavy coaches of conventional type. The body was therefore required to be able to withstand a static buffer force of 100 tons as well as a uniformly spread vertical load of 15 tons without suffering permanent deformation.

Fig. 1. — First light-weight steel coach. 1936 design. Tare weight : 24 950 kg. 72 second-class seats.

press-forging properties having the following composition : C = 0.27, Mn = 0.25, Cu = 0.2, P = 0.013, S = 0.016 %.

Due to its copper content, this steel has a high corrosion resistance and is well suited for electric welding and cold forming.

The specifications of 1931 also mention that the distance between the centre lines of the seats should be increased by 12 % which resulted in the increase of the length of the coach from 20.40

The theoretical calculation of the strength of the coach presented certain difficulties. Owing to simplifying assumptions, it was possible to calculate the stresses occurring in the plane sheets stressed on all sides and subjected to shearing or compressive forces. The calculation of the stresses and their distribution in those parts of the structure which transmit the support reactions from the bogie pivot to the tubular girder was likewise laborious. The same applied to the distribution of the force

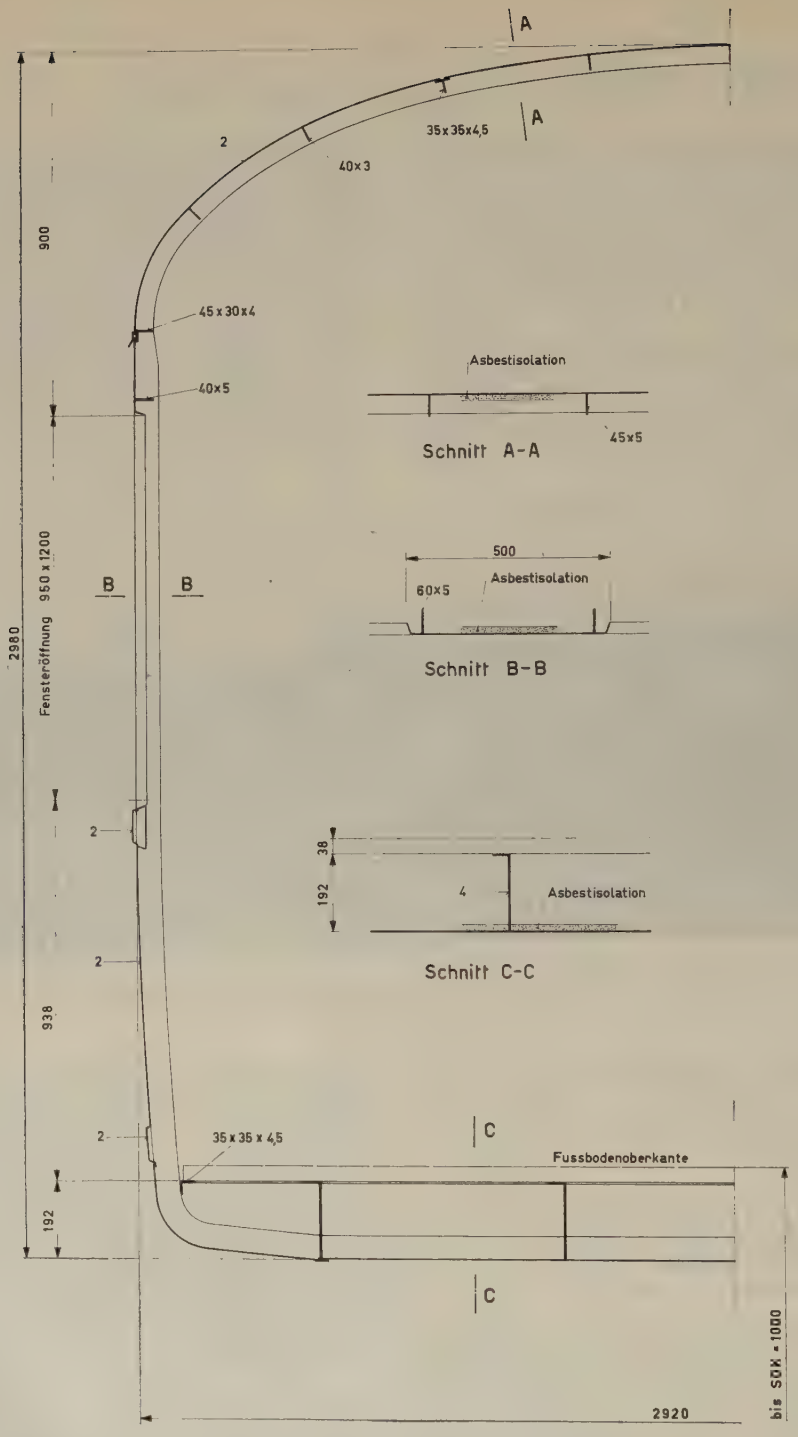


Fig. 2. — Half-section of the body of the first light-weight steel coach.

N. B. — Schnitt = section. — Fensteröffnung = window opening. — Fussbodenoberkante = floor level. — Asbestisolation = asbestos insulation.

exerted on the buffers and of the stresses in the corners of the windows and door openings, especially in the zones in the vicinity of the bogies, i.e. where the vertical shearing forces are greatest. Where the calculation method could not be applied, it was necessary to rely on measurements. Very numerous measurements were taken of the static stresses, and many vibration tests were carried out, not only on certain structural parts but also on the bare body of the coach. This body structure is of the monolithic type where all the main components (underframe, wall and roof) form a tube of rectangular cross-section with rounded and reinforced corners (figs. 1 and 2). All these parts are assembled with each other by means of electric welding; there is not a single rivet. The ends of the body are formed by box type units capable of absorbing high dynamic forces and of distributing them over the whole cross-section of the body. The whole body consists exclusively of sheets of 1.5 to 2.5 mm thickness. In order to reduce the weight, no rolled profiles were used. Thermal and acoustic insulation is obtained by an asbestos type insulation of 10 to 15 mm thickness sprayed by gun on all the internal surfaces of floor, walls and roof. On the whole, the tests carried out on the bare body of the coach showed that the stresses nowhere exceeded the permissible limits. The vibration tests likewise yielded satisfactory results.

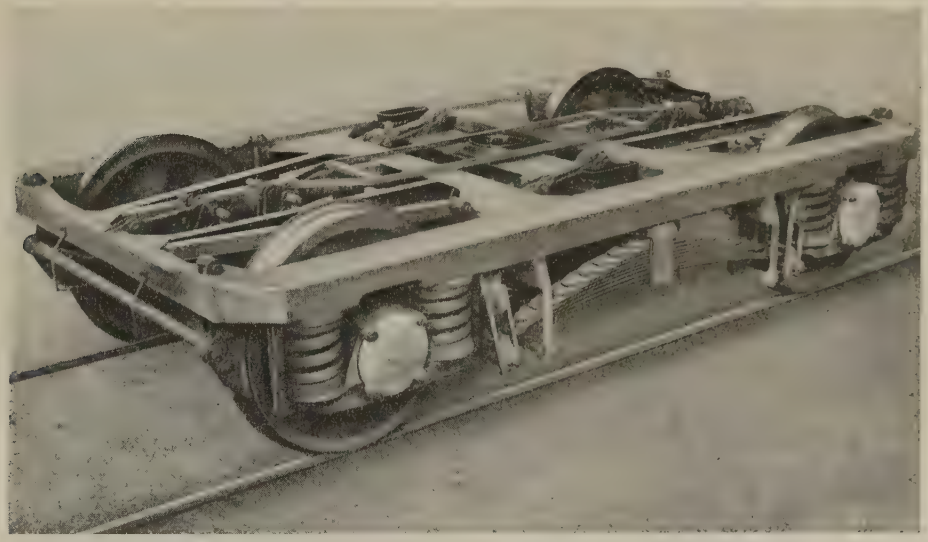


Fig. 3. — Bogie of the first light-weight steel coach.

The bogies (fig. 3) are of an entirely new design. Here, too, steel 37 has been used for the frame, the axle box guides, the suspension organs and the brake. The frame consists of a girder

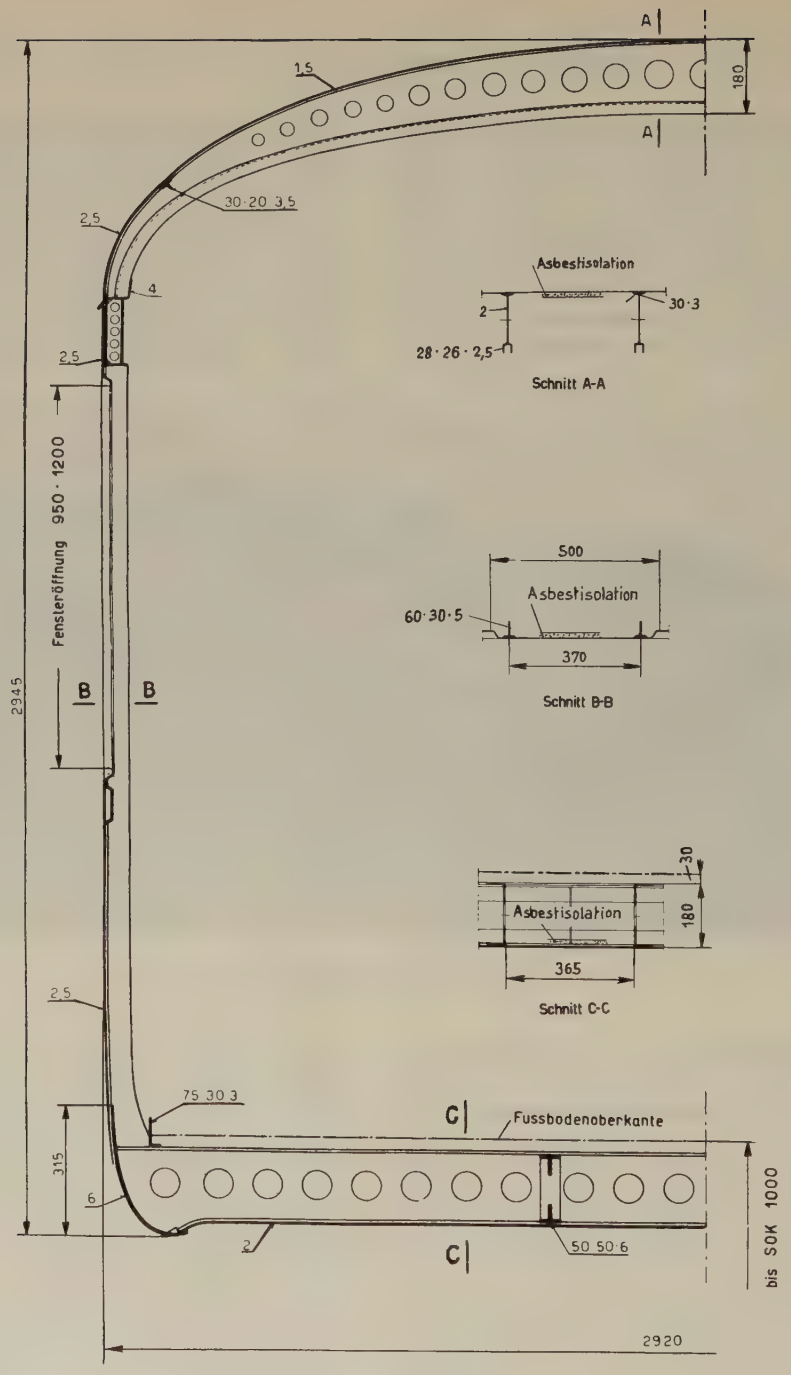


Fig. 4. — Half-section of the body of the 1937-1955 type light-weight steel coaches.

N. B. — Schnitt = section. — Fensteröffnung = window opening. — Fussbodenoberkante = floor level. — Asbestisolation = asbestos insulation.

of tubular cross-section where the side-sills show no bend in the vertical plane. The axles are guided, without clearance, in the horizontal plane by cylindric guide blocks placed in an oil bath. The bottom of the piston has several holes through which the oil is pressed, thus ensuring the damping of the suspension

Savings in weight have also been achieved on the wheel set. The axle pin is hollow, and the buckle of the wheel centre is no more than 8 mm thick; it is corrugated in the radial direction and in the plan in order to obtain good elasticity in all directions. The secondary suspension consists of two long leaf

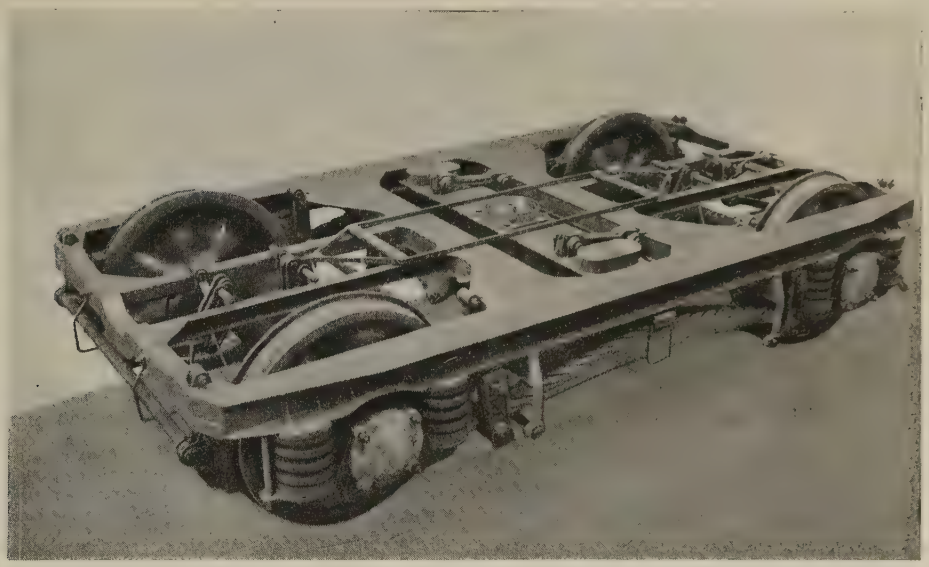


Fig. 5. — Bogie of the 1937-1955 type light weight steel coaches.

which consists of coil springs. In order to damp the high frequency oscillations, a rubber disk has been placed between the coil spring and the supporting bracket of the axle box. This device for the axle guidance and primary suspension showed so good results that it could later be used without any major modifications. After twenty years of service, the wear of the guide blocks normally amounts to between 0.2 and 0.3 mm.

springs of grooved cross-section, placed lengthwise. These springs transmit the vertical load from the bogie bolster to the side-sills of the bogie frame by means of slightly inclined rods. The bogie bolster is connected with the bogie frame in the longitudinal direction by means of articulated rods. One pair of bogies weighs, together with the dynamo, 7.5 tons compared with 13.6 tons for the earlier designs. The complete coach weighs 24.95 tons.

The running properties of the prototype were better than those of a heavy-type coach. This result was particularly fortunate inasmuch as it was recognized for the first time that light-weight coaches were also able to offer a high degree of running stability.

On the other hand the manufacture of this vehicle turned out to be rather expensive. The whole design was subjected to further studies with a view to introducing simplifications and arriving at a more rational manufacturing process (figs. 4 and 5). For this purpose, a weight increase of 2 tons was accepted.

The light-weight steel coach proved to be popular with passengers right from the beginning. The vehicle fulfilled all expectations, without any reservations. It is therefore not surprising that it has been possible to adhere to this type of vehicle for over twenty years. During this period, in spite of the economic crisis, the war and other obstacles, more than 1 200 vehicles of different types have been constructed without ever abandoning the basic conception. It was only in 1954 that the problem of light-weight vehicles was again approached in the light of new knowledge acquired in the fields of technology, metallurgy and welding, and with a view to facing up to the more exacting requirements in regard to passenger comfort. Appropriately, the greatest care was devoted to the strength of the coach body in respect of static loads. Several light-weight coaches had already given proof of their good qualities in this respect. By way of example, figure 6 shows the damage suffered by a vehicle as a result of a head-on collision at a speed of 65 km/h with a locomotive at the head of a stationary train. The excellent performance of the coach body is apparent from the manner in which the end had absorbed a great quantity of energy in the form of deformation, without any damage being inflicted on the passenger compartments. In fact, none of the passengers in the end compartment suffered any serious injuries.

The new standard second-class coach stems from an ideal contest in which four Swiss passenger coach manufacturers took part. In 1954, the Swiss Federal Railways offered a major award for interesting designs, leaving the competitors a high degree of freedom. The specifications for the contest were thus confined to the essential data. The new design was to be developed on the basis of the steel lightweight coach which had proved its value in operation. The specifications called for 80 seats arranged as usual in groups of four, i.e. two groups on either side of the central corridor. The distance between the centre lines of the seats was to be 1.65 m, and the overall length of the vehicle 23.70 m. A sketch showing the principal data served as a basis, but it was made clear that other solutions might also qualify for awards if they offered advantages. After a completely objective and thorough examination of the results, two of the manufacturers, Schweizerische Industrie - Gesellschaft, Neuhausen, and Schweizerische Wagons- und Aufzüge A.G., Schlieren, came out best on a virtually equal points count. Schweizerische Industrie-Gesellschaft was awarded an additional award for a very interesting design, submitted

outside the competition, where the entrance doors were placed over the bogies. This arrangement was made possible, firstly, by the inwards bending of the bogie frame side-sills at the stairs and, secondly, by the judicious arrangement of the other parts of the bogies, such as the coach body supports, the bogie bolster, the secondary suspension, and the cardan shaft of the dynamo drive.

Fig. 6. — Light-weight coach after a head-on collision at 65 km/h with the locomotive of a stationary train.

Subsequently, the Swiss Federal Railways commissioned the two winners of the competition to prepare all the designs and drawings required for the construction of first-class and second-class coaches. The study of a mixed-class coach was deferred for the time being as such a coach will not be needed for some years to come. Owing to a good distribution of work and a close and fruitful collaboration between the experts of the design offices and those of the technical departments of the railway, the work proceeded so rapidly that, already in the spring of 1955, it was possible to place orders for two prototype second-class coaches with each of the two firms. It is convenient to recall, at this point, that the design of the new coach was dominated by the desire to find a simple construction method, characterised by the large-scale use of spot welding, good accessibility of all the parts to be maintained in service, easy cleaning of the compartments and platforms, and finally by great strength. The prototype coaches were tried out in service for about eight months before orders were placed for a large number of first-class and second-class coaches. During that period, the railway departments concerned with operation, maintenance and cleaning as well as the passengers had the opportunity to express their opinion on these new coaches. Numerous persons availed themselves freely of this right, as is the custom in Switzerland. Several excellent suggestions could be partly or even wholly adopted. It had not been regarded as necessary to construct prototypes of the first-class coach as the body

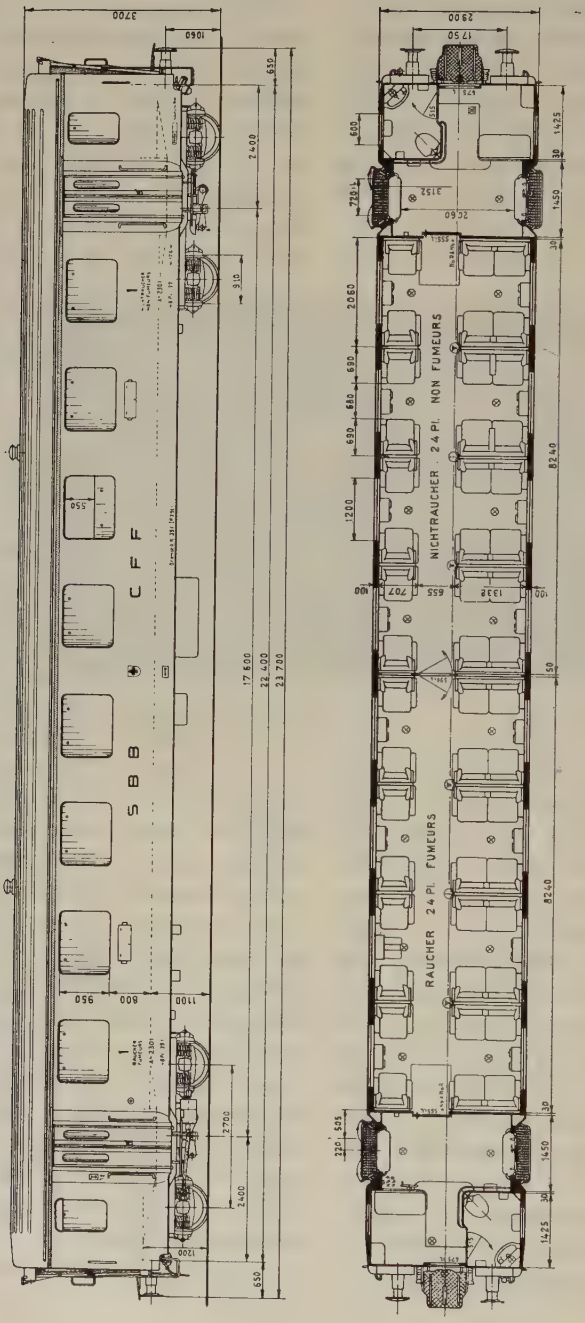


Fig. 7. — Elevation and plan of standard first-class coach, 1957 design.
Tare weight : 29 tons. 48 seats. Weight per seat : 604 kg.

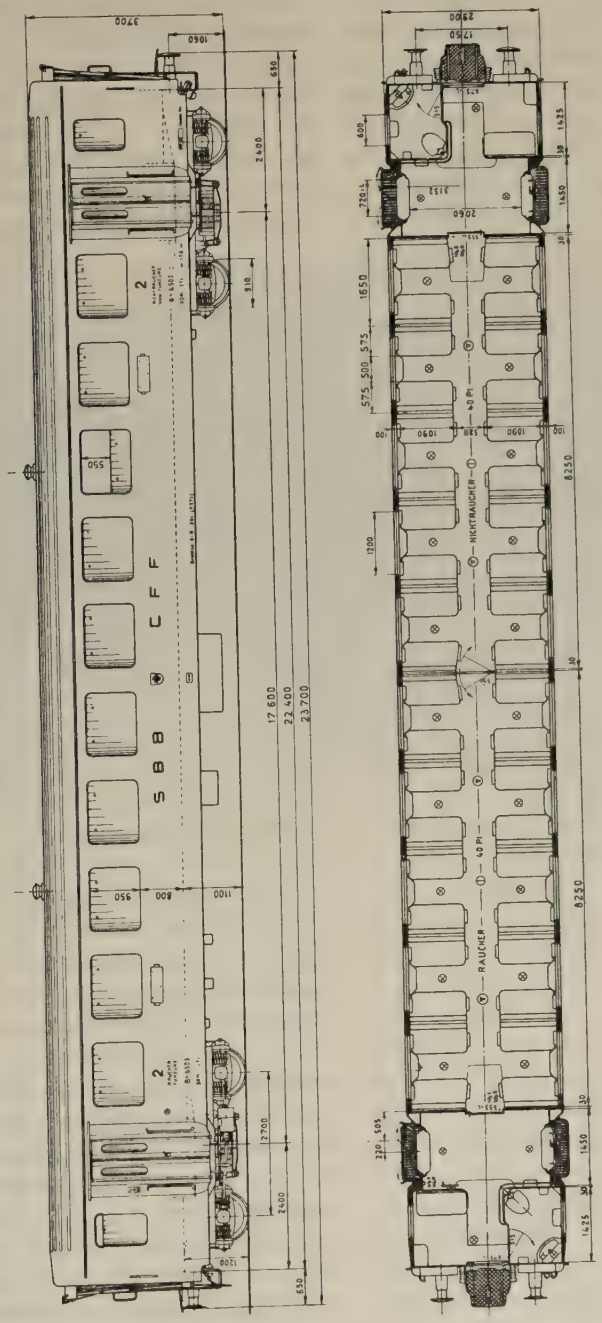


Fig. 8. — Elevation and plan of standard second-class coach, 1956 design.
Tare weight : 27 tons. 80 seats. Weight per seat : 338 kg.

and the bogies are the same for both types of coaches. The numerous new standard coaches commissioned in the course of the last two years have been warmly welcomed by passengers. Apart from some minor shortcomings of secondary importance, it has been possible to preserve the design for the new

Fig. 9. — Standard first-class coach.

orders without modifications. We shall now describe the essential parts of these coaches which, because of their novelty, should be of general interest.

1. **Basic conception** (figs. 7, 8 and 9).

As we have seen, the design of the first-class and second-class coaches is, in principle, similar. The distance between the centre lines of the seats is 2 060 mm in the first-class and 1 650 mm in the second-class. Each coach contains a smoking compartment and a non-smoking compartment of equal size. Each compartment contains four groups of seats in the first-class and five groups in the second-class. The entrance platforms and the two lavatories placed at the ends are identical. The degree of standardisation thus obtained has economic and technical advantages as well as operating advantages. Although the structure previously used already showed a very high impact strength, the new cars have been designed to resist even much greater static forces. The compression force acting on the buffers may be as high as 200 tons, with a uniformly distributed vertical load of 30 tons. Under the impact of these forces (figs. 10 and 11), the stresses nowhere exceed the elastic limit. As in the case of the earlier coaches, the ends of the body have been considerably reinforced. The placing of the entrance vestibules above the bogies has made it possible to place the two compartments between the bogies. One thus obtains, at each end of the coach body, a shock-absorbing unit of about 3 m length capable of absorbing a great

quantity of energy in the form of deformation so that the central part, where the passengers are seated, is not likely to suffer major damage in the case of a head-on collision.

The arrangements adopted have led to an increase in the total length by 1 m, but this has been done without increasing the weight.

Fig. 10. — Static load tests on the bare body of a standard coach.

2. **Passenger comfort.**

It was regarded as one of the requirements of the times to offer the passengers a very high degree of comfort while adhering to sound economic principles, i.e. keeping the construction and maintenance costs within tolerable limits. It goes without saying that it was necessary, in this respect, to preserve a considerable difference between first and second-class. Even so, the passenger must be able to feel at ease in both types of coaches and must find, during the journey, some of the comfort which he enjoys at home. The movement from the place of departure to the place of destination should not be the only attraction of the journey. The passenger should also experience a feeling of satisfaction in being in the car.

One has tried to endow the two identical compartments (figs. 12 and 13) with an appearance of brightness and spaciousness. For this reason the partition and the door separating the two compartments are fitted with large windows.

In the *first-class coach,* the luggage racks are arranged lengthwise above the windows. The side walls and end walls are clad with panels of natural wood of bright colour shade, which convey an impression of warmness and discreet elegance. The seat coverings consist of furnishing fabric or moquette in fairly lively colour shades, red in the smoking compartment and green in the non-

smoking compartment. The seats and seat backs are hinged so that each passenger can settle down at his ease. Admittedly, the disappearance of the conventional luggage racks in transverse arrangement has given rise to numerous discussions. However, as the length and surface of the longitudinal luggage racks, ignoring the small supplementary racks missing here, are greater than those of the transverse luggage racks, it may be conceded that, generally speaking, the advantages are greater than the disadvantages, the more so as heavy or bulky luggage (skis, etc.) can be deposited in the entrance vestibule, opposite the lavatories. For this purpose, the seat arranged at this place can be tipped up.

In the *second-class coach,* it was necessary to preserve the two-tier luggage racks arranged transversely above the seats. Here again, one has tried to give the compartments a pleasant appearance by a judicious choice of designs and materials, though the colour shades of the seat coverings and walls are more neutral than in the first-class.

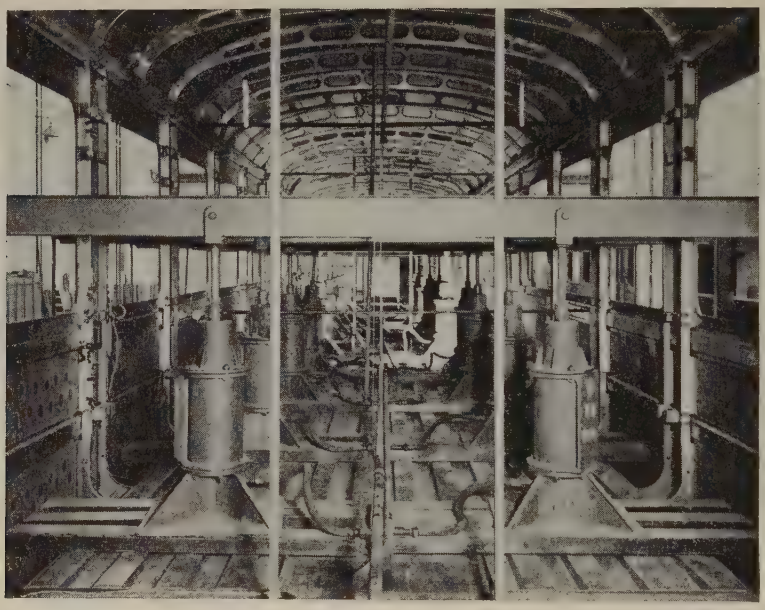


Fig. 11. — Interior of coach body during the static load tests.

3. **Body frame.**

The body frame is designed, as before, in accordance with the principle of the self-supporting tubular girder, with the necessary reinforcements (fig. 14 and 15). All the parts are constructed of plane or bent steel plates. The steel is again of the same quality which had already shown such good results. In order to increase the resistance to static

compression forces, especially at the level of the buffers, a corrugated floor plate has been adopted which is connected with the two side-sills by a Z shaped sheet of 5 mm thickness. The whole of the frame is further reinforced by double-tee transoms and by the end-cement ribs. The lateral zones of this plate are 2.5 mm thick. As far as possible, all the components of the coach body are manufactured as separate units which are then assembled by means of assembly templets. The greatest possible use has been made of spot welding.

Fig. 12. — First-class compartment of a standard coach.

larged feet of the vertical members of the side walls welded to the side-sills (fig. 16). The plates of the side walls are 2.5 mm thick and are reinforced by two longitudinal profiles of omega cross-section, formed by a sheet of 4 mm thickness. The roof plate is, in the central part, 1.5 mm thick and is provided with pressed longitudinal reinfor-

The systematic use of templets marks an important step forward in the manufacture of the coach body. The dimensions of all units are in keeping with the manufacturing tolerances fixed in the drawings. The assembly of the component parts can therefore take place without further adjustments. As a result of a well planned design and a judicious

sequence of operatons, it is possible to reduce truing operations to a minimum and thus to eliminate to a great extent the internal stresses in the metal which cannot be controlled. It may finally be mentioned that it was decided after careful examination not to close the floor at the bottom so as to facilitate inspection and improve the accessibility of air ducts, electric wiring, and equipment. This design also facilitates the detection of damage or incipient corrosion.

The new design of the body frame represents a saving of about 1 000 working hours compared with the earlier design.

The acoustic and thermal insulation has been the subject of very careful study. The outer surface of the floor plate is covered by a 2 to 3 mm thick layer of a bituminous product which has the dual function of serving as heat insulation and as an effective protection against corrosion. On the inside, the floor plate is covered by an insulating

Fig. 13. — Second-class compartment of a standard coach.

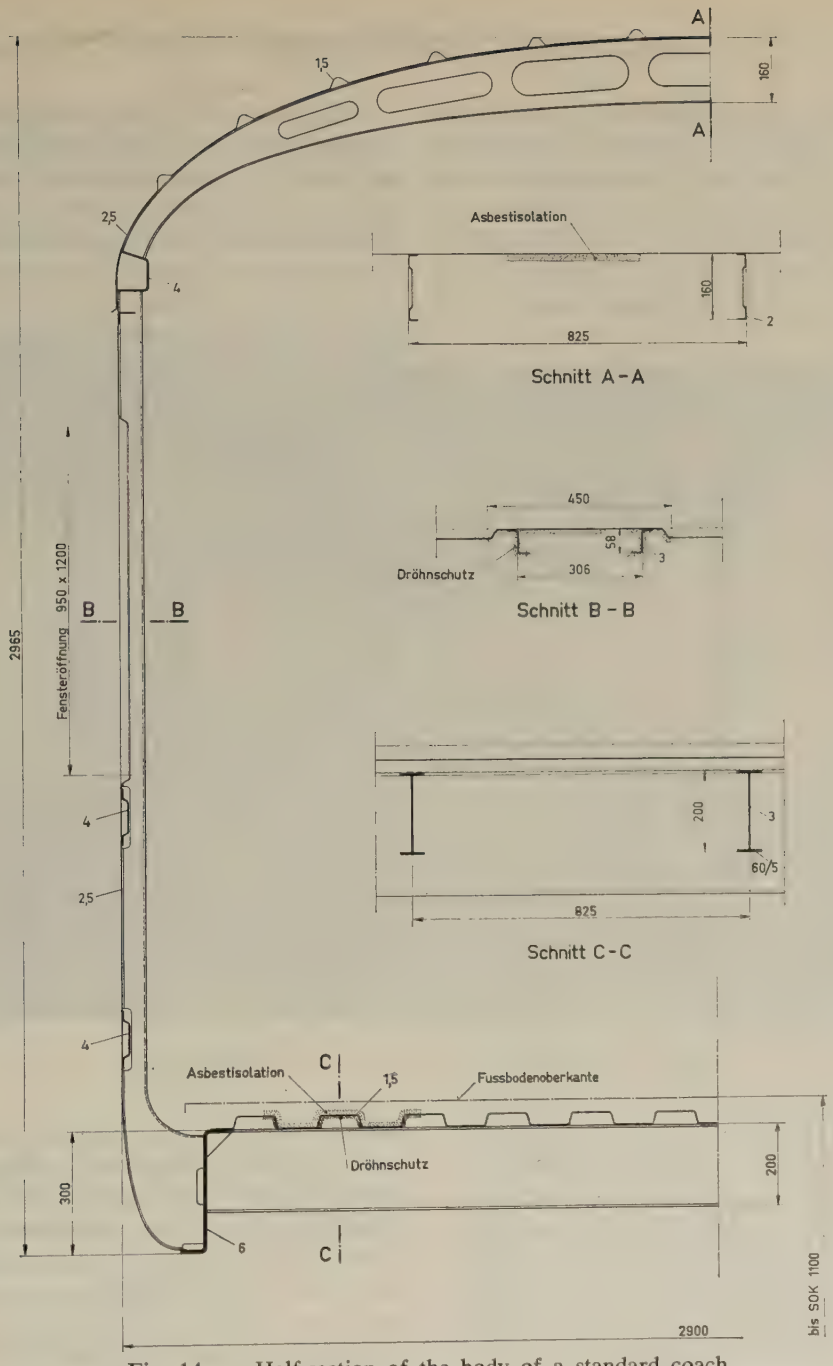


Fig. 14. — Half-section of the body of a standard coach.

N. B. — Schnitt = section. — Fensteröffnung = window opening. — Fussbodenoberkante = floor level. — Asbestisolation = asbestos insulation. — Dröhnschutz = sound proofing.

layer of asbestos material which is between 10 and 15 mm thick. The flooring itself consists of compressed wood panels of 19 mm thickness (fig. 17), covered with linoleum of 4.5 mm thickness. The floor of the first-class coaches is covered with a moquette carpet. The

As in the case of the first light-weight coaches, the new design of coach body has been subjected to very extensive static and dynamic load tests, carried out with the aid of new pneumatic and electric apparatus. Figures 10 and 11 show the coach body during the buffer com-

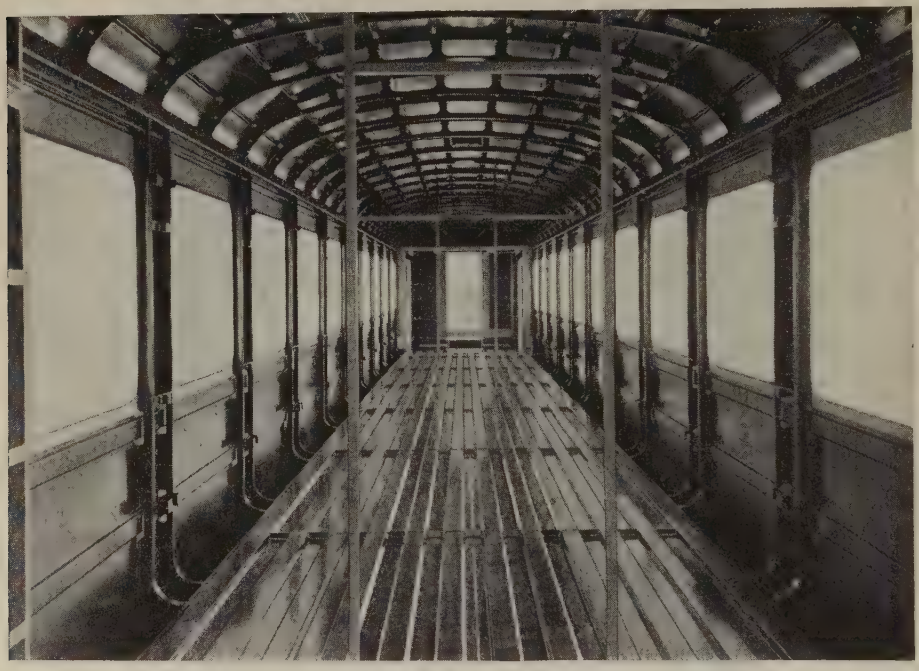


Fig. 15. — Interior of the bare body of a standard coach.

posts of these coaches are fitted with an additional insulation consisting of Isoflex panels with aluminium foil. The side walls are treated in the same way as the outside of the floor plate. Roof insulation is ensured by means of an asbestos product. Sound measurements have confirmed the effectiveness of the measures taken to obtain a good sound insulation.

pression tests. The vertical load is applied to the floor by means of pneumatic cylinders connected to the counterweights placed on the ground on either side of the coach. For the vibration tests, electro-magnetic exciters have been used which are controlled by a specially designed apparatus permitting a variation of the excitation frequency within wide limits. All the stresses mea-

sured are below the elastic limit of the material. The natural frequency of the bare coach body is 16.2 c/s; that of the fully equipped coach body is slightly lower, viz., 11.8 c/s. Running tests and numerous observations made in

Fig. 16. — Inside view of part of the side wall.

operation have shown that the natural frequencies do not occur under normal service conditions. On the other hand, these frequencies may be encountered if one or more sets of wheels show out-of-balance or out-of-roundness.

4. **Interior equipment.**

In the first-class coaches, the wall coverings consist of a very thin sheet of natural wood soaked in synthetic resin and glued under very high pressure on a panel serving as support. The panel thus produced is rather indifferent to the influence of temperature, air humidity, and the various chemical agents which might be encountered. It presents a smooth surface with fairly high scratch resistance. A judicious choice of woods has made it possible to obtain felicitous artistic effects. Throughout, use has been made of home varieties such as ash, cherry and maple wood. The seats (fig. 18) are of the same type as those of the Trans-Europe-Express trains jointly constructed by the Netherlands Railways and the Swiss Federal Railways. The hinged seats and seat-backs can be fixed in the desired position; they are covered with velours or furnishing material of the first quality. The antimacassars as well as the covers consist of synthetic fabrics of the polyamide type. Aluminium has been widely used for all interior decoration as well as for luggage racks, window frames, sliding doors and parts of the seats. The visible parts are polished and anodically oxidized.

The second-class compartments have a simpler appointment which is nevertheless attractive. The seats and seat backs are lightly upholstered, and co-

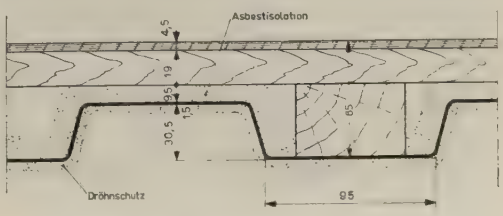


Fig. 17. — Cross-section of floor.

N. B. — Asbestisolation = asbestos type insulation.

vered with brown imitation leather. The walls are likewise covered with this material. Seats and seat backs can easily be removed and replaced. The luggage racks consist of a framework of nickel-plated tubular steel, and of green coloured battens of synthetic material.

resistance. They are protected against frost. The pedal-operated valves feeding the W.C. and wash basin are fitted directly on the water tanks so that the pipes are normally empty.

The connections between adjacent coaches have also been improved, as far

Fig. 18. — Group of first-class seats.

As already mentioned, the entrance vestibules and lavatories (fig. 19) are identical in the two classes. The lavatories are more spacious than in the earlier coaches, and the sanitary installations have been improved. It has been possible to achieve a considerable saving in installation cost by using prefabricated units. The water tanks are cylindrical and consist of aluminium sheets so that they have a high pressure

as this was compatible with the need for coupling to old-type coaches. The connecting door is wider so that the passage from one coach to the other is easier (figs. 20 and 21). Through using new materials for the bellows and all the fittings and hinges, it has been possible to reduce, the weight and to eliminate certain sources of noise. The passage is lit up and equipped with large hand rails. Friction type dampers

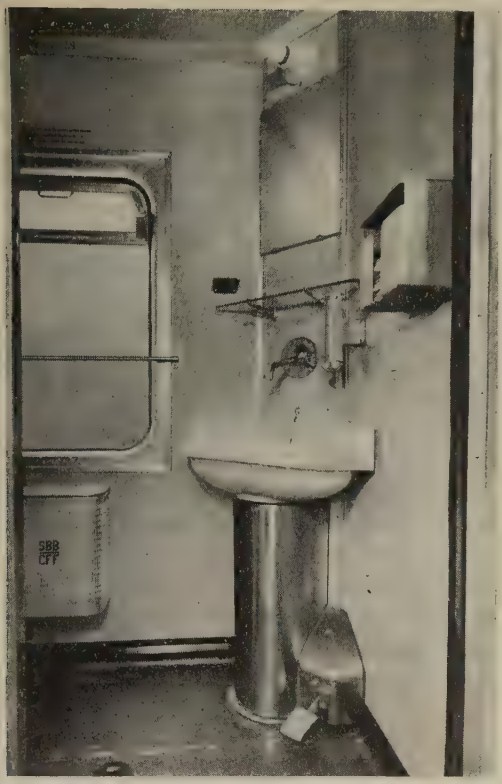


Fig. 19. — Lavatory.

prevent oscillations of the bellows during running.

After prolonged studies, it was decided that the new standard coaches should also be provided with windows opening downwards. The very difficult problem of keeping this type of window tight was the subject of careful studies. Schweizerische Industrie-Gesellschaft, Neuhausen, succeeded in developing a new guiding and tightening system for these windows (fig. 22). The whole window, complete with pane, guiding and tightening devices and counter-balance forms an integral unit which can be manufactured separately. This unit is mounted on an auxiliary casing which is then fixed by four bolts to the body framework. The pane is fixed in a U-shaped frame consisting of an aluminium profile which serves as a guiding as well as tightening device. The pane, with the frame, is guided at three points, viz., at the two vertical sides and in the centre of the bottom horizontal side. The balancing device is formed by two horizontal springs and two levers which are fitted, at their end, with a roller, and on which the window pane rests. The window can easily be handled by means of two buttons.

Fig. 20. — End wall with communicating bellows.

Fig. 21. — Interior of passage between two coupled coaches.

5. **Bogies.**

In principle, the design of the wheel sets with their boxes and guiding devices has remained the same as for the older coaches. The primary suspension (fig. 25) still consists of coil springs with hydraulic damper, making use of the oil bath required for the guiding device. On the other hand, the leaf springs for the secondary suspension have been finally abandoned. The leaf springs used so far consisted of channel-shaped leaves. They have given good results; after prolonged service, however, the internal friction of the leaves becomes very irregular and uncontrollable as it depends on the greasing conditions. There are two types of secondary suspensions in use. In the first-class coaches, this suspension consists of two torsion bars in each bogie (figs. 26 and 27), whilst the suspension of the second-class coaches consists of two pairs of coil springs, placed at the ends of the bolster beam (figs. 28 and 29). Each pair of coil springs is fitted with a hydraulic damper. The design of this suspension is simpler than that of the torsion bar system; but it requires the use of a damper. With the torsion bar suspension system, the necessary damping is produced by the friction in the toggle joint bearings of the bars. The two suspension systems are about equal in regard to construction and maintenance costs as well as running properties.

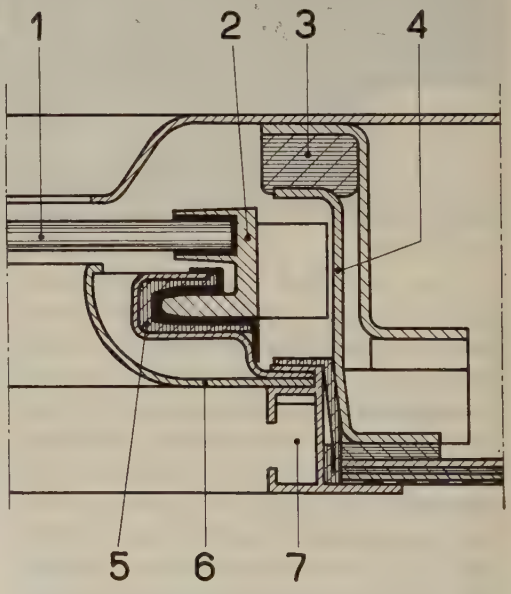


Fig. 22*a*. — Horizontal section of the window (along line A-A in fig. 23).

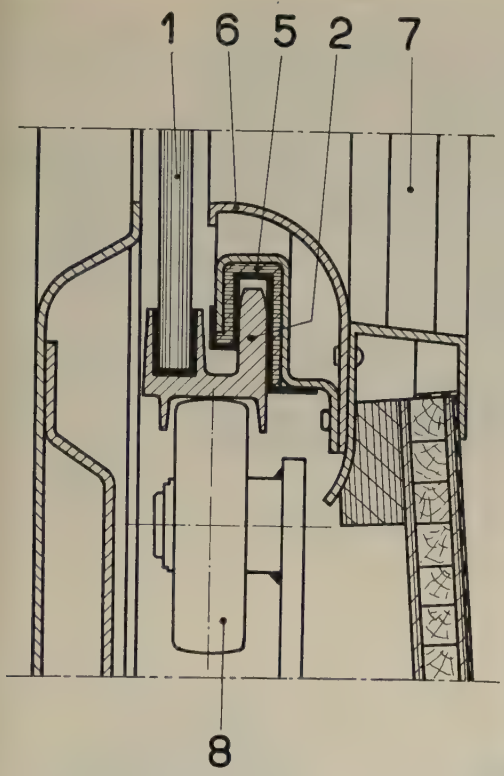


Fig. 22*b*. — Vertical section of the window (along line B-B in fig. 23).

It is not yet possible to state which of the two systems will be adopted for future constructions.

The side-sills of the bogie frames are, in the central part, bent inwards in order to make way for the steps. These sills are of the hollow girder type, consisting of two flanged plates welded together. The axle guides, the supports of the suspension organs and the brake fittings are welded to the sills. The mechanical part of the air brake installation is mounted in the bogie. The pneumatic part of the equipment such as the distributor, the air reservoirs and air pipes to the brake cylinders are mounted in the frame. It was found possible to simplify the brake rigging, which is equipped with an automatic brake gear adjuster. All the joints are fitted with nylon rings. Each wheel is braked by two shoes.. The brake power at the shoes is 145 % at speeds above 60 km/h, and 75 % at speeds lower than 50 km/h. In the released position, the hand brake has no metallic connection with the brake rigging. When the hand brake is applied, a roller comes to rest in a lever of the brake rigging which had previously been free. The coach body rests on oil bath type bolsters at

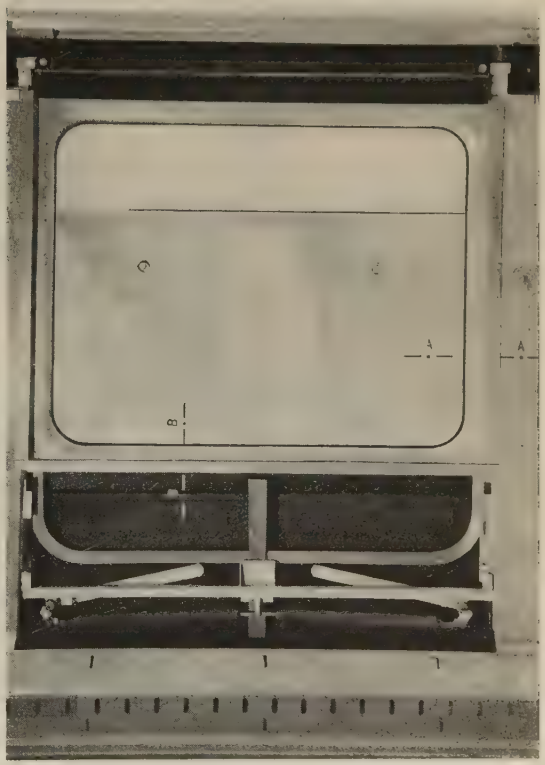


Fig. 23. — Mounted window unit.

Fig. 24. — The three main components of a window : auxiliary casing, pane with frame, window fitting.

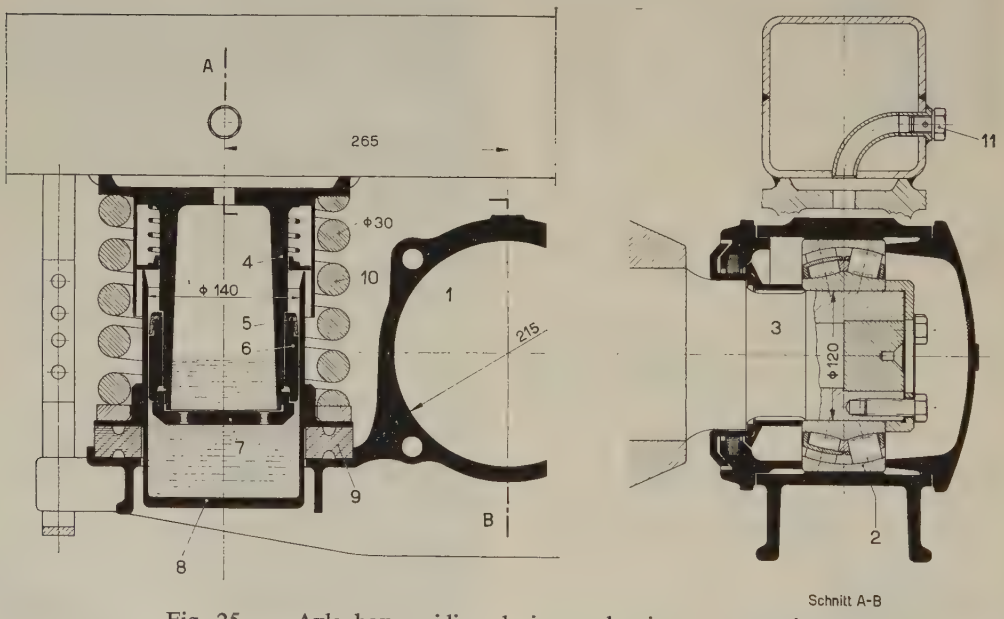


Fig. 25. — Axle box, guiding device, and primary suspension.

the ends of the bolster beams. Under the weight of the empty coach, the spring compression of the primary suspension is 57 mm, and that of the secondary suspension 65.5 mm.

6. **Lighting and heating.**

Detailed investigations have been carried out in order to determine whether incandescent or fluorescent lighting should be used. It was finally

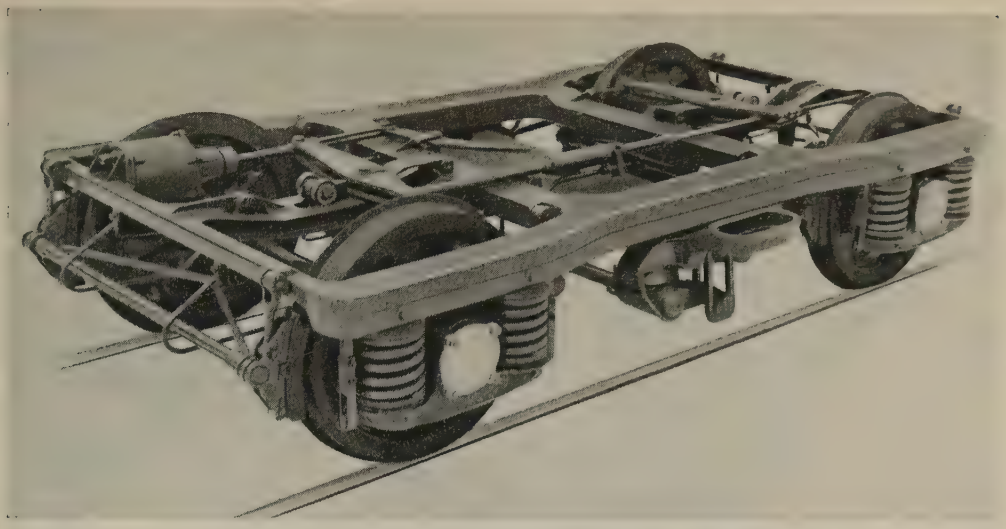


Fig. 26. — Bogie of standard first-class coach with torsion bar type secondary suspension.

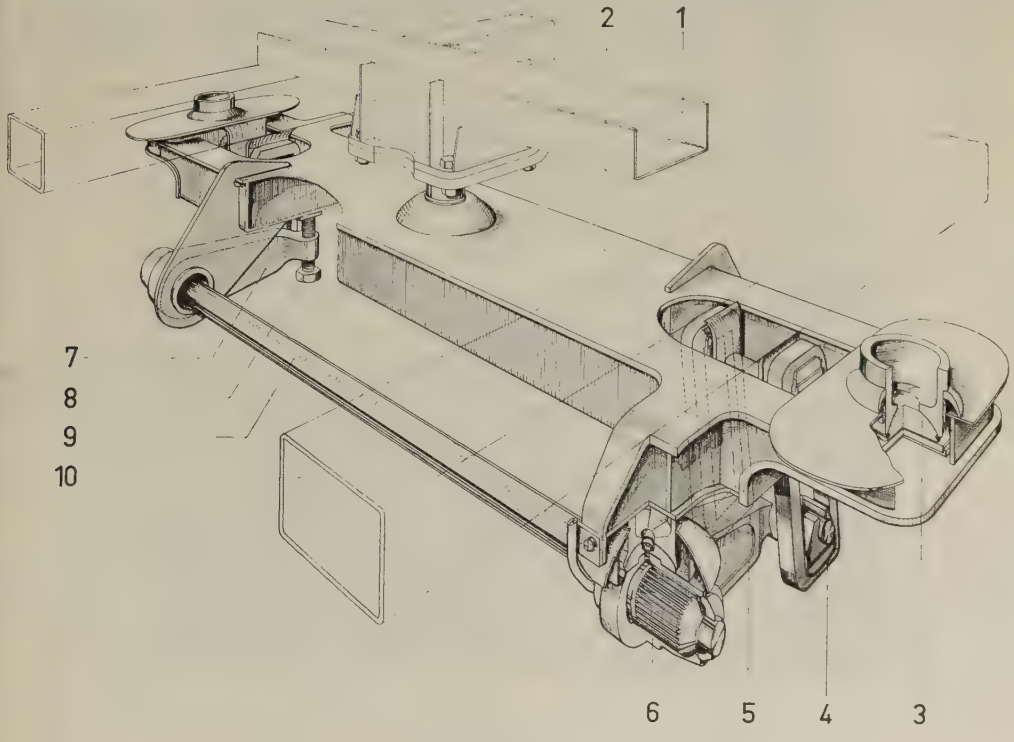


Fig. 27. — Bogie bolster and torsion bar type secondary suspension.

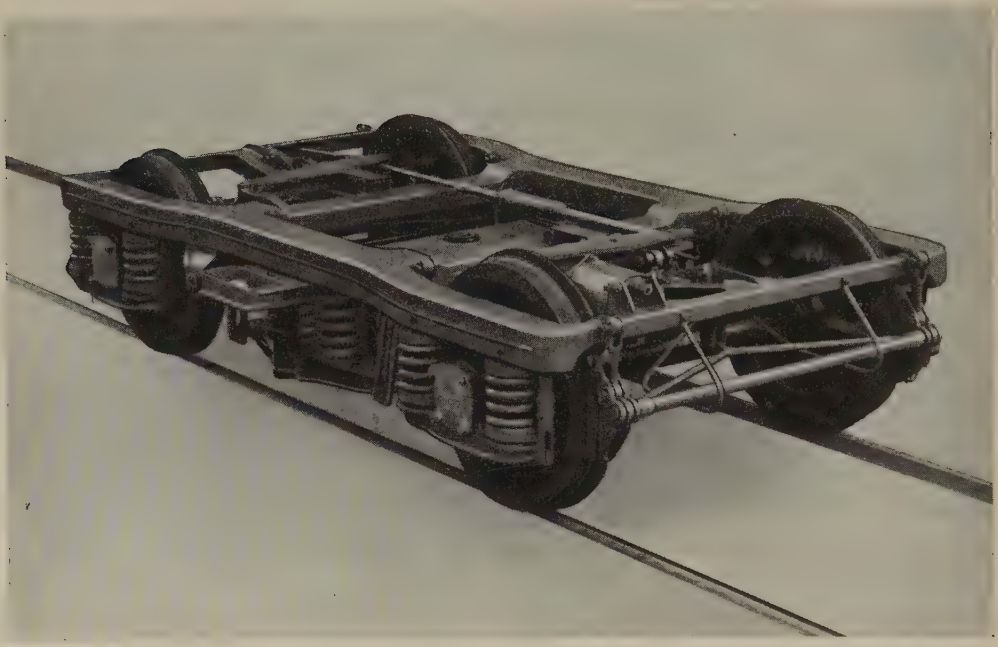


Fig. 28. — Bogie of standard second-class coach with coil spring type secondary suspension.

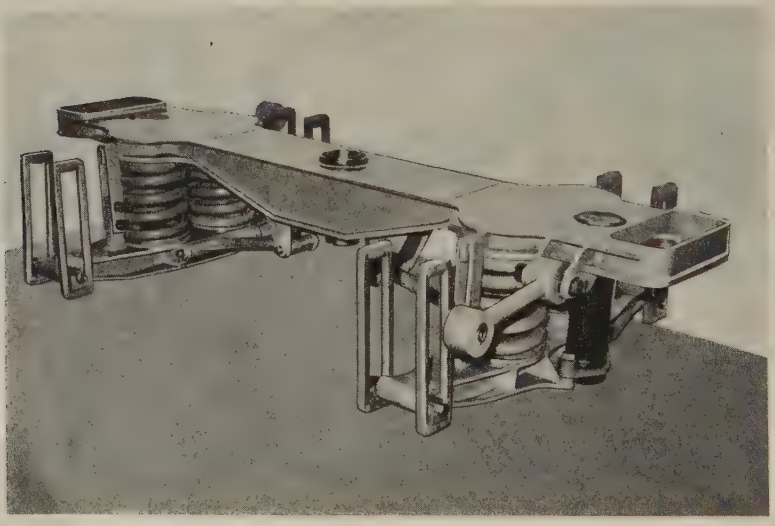


Fig. 29. — Bogie bolster and coil spring type secondary suspension of the bogie.

decided to use incandescent lighting which is less expensive and provides more agreeable lighting conditions for passengers, in spite of all the technical progress made with fluorescent lighting. The first-class coaches are fitted with 50 W lamps, and the second-class coaches with 30 W lamps. After half their normal life, these lamps provide a lighting intensity of 90 and 75 lux, respectively, measured at a point situated 80 cm above the floor and at a horizontal distance of 60 cm from the seat back. As in nearly all bogie vehicles of the Swiss Federal Railways, the lighting generator is driven by means of a cardan shaft. The nominal battery voltage is 36 V.

The new standard coaches are equipped with a forced air heating installation similar to that used in the more recent R.I.C. coaches of the Swiss Federal Railways. The heating unit and blower set required for heating and air propulsion are installed in the roof above each entrance vestibule (fig. 30). The ambient air is taken in above the entrance doors; it then passes first through a coarse filter and then through a fine filter where all dust particles exceeding 5 micron are retained. At the blower outlet, the air passes through the electric heating unit before being pressed into the distribution ducts along the lower part of the side walls of the compartment. The warm air enters the compartment at a velocity of 0.3 m per sec, without causing a draught, through numerous small openings in the side wall of the distribution ducts. In this way, a very slight over-pressure of a few millimetres water column is created in the compartment. The vitiated air escapes through an opening in the roof.

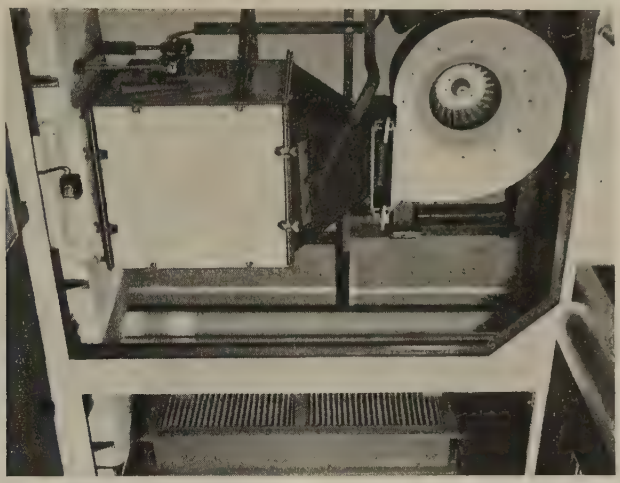


Fig. 30. — Blower and heater of the forced air heating installation.

There are about 11 air changes per hour. One has not made use of the possibility of reusing part of the warm air from the compartments. The air renewal system works as a mere ventilation system without heating when the ambient temperature exceeds 18° C. The installed power is 35 kW, sufficient to cope with an ambient temperature of — 20° C at a running speed of 125 km/h. The blower motors are fed from the heating main by means of a transformer which reduces the voltage to 220 V. Each motor has a power of 1/8 H.P.

Fig. 31. — Differential thermostat.

The heating is automatically controlled by means of thermostats. The temperature of the air distributed in the compartments depends on the ambient temperature and is the higher, the lower the latter. Each heating unit is controlled by four thermostats, acting as follows :

1) the *safety thermostat* is mounted on the duct immediately behind the heater. If the temperature of the hot air exceeds 180° C due to a fault in the installation, e.g. if the air filters are obstructed by foreign matter or dirt, or if the blower has stopped, the safety thermostat disconnects the current feeding the heater;

2) the *compartment thermostat* regulates the temperature in the compartment at the level of 20 ± 0.7° C;

3) the two *differential thermostats* (fig. 31) are mounted in the hot air duct at the outlet of the heater, close to the safety thermostat. The regulating unit consists of a cylindrical body of about 30 cm length. The active part of one of the two thermostats penetrates deeply into the ducts whilst the active part of the other thermostat penetrates into the duct to a much lesser degree (fig. 32). These two thermostats cause the connection and disconnection of the heating unit at hot air temperatures dif-

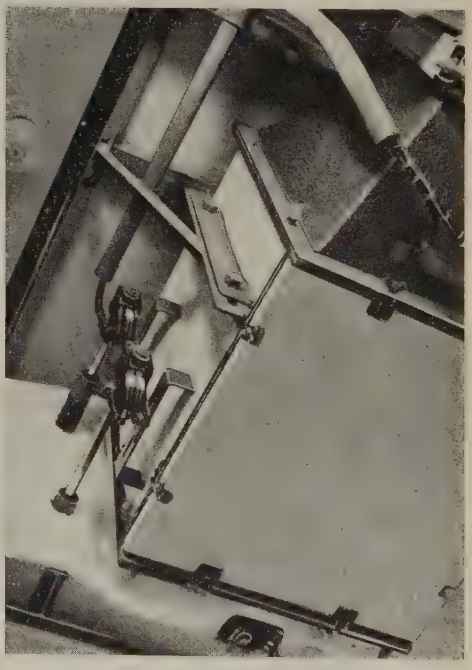


Fig. 32. — Arrangement of the two differential thermostats. At bottom centre, the safety thermostat.

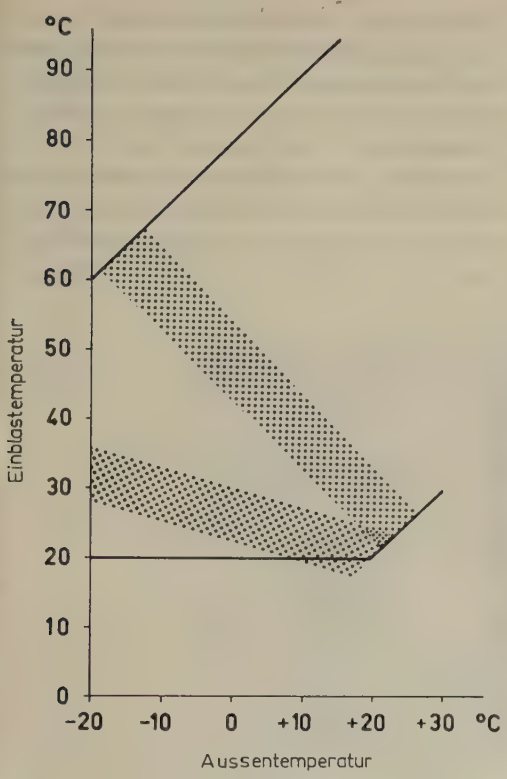


Fig. 33. — Characteristics of the forced air heating control system.

N. B. — Einblastemperatur = temperature of forced air. — Aussentemperatur = ambient temperature.

fering from each other by approximately 12° C.

The thermostat less influenced by the hot air controls the more intensive heating whilst the other thermostat controls the less intensive heating.

With the aid of the compartment thermostat and the two differential thermostats, the temperature in the compartment is regulated as follows.

When the heating is switched in first, the heater is energized. When the temperature in the compartment has reached 20.7° C, the compartment thermostat connects the differential thermostat for less intensive heating which, in turn, switches the heater on and off intermittently in such a way that the « off » period is generally longer than the « on » period. The temperature in the compartment will therefore gradually drop to 19.3° C. At that moment, the compartment thermostat connects the differential thermostat for more intensive heating. Under the control of the latter,

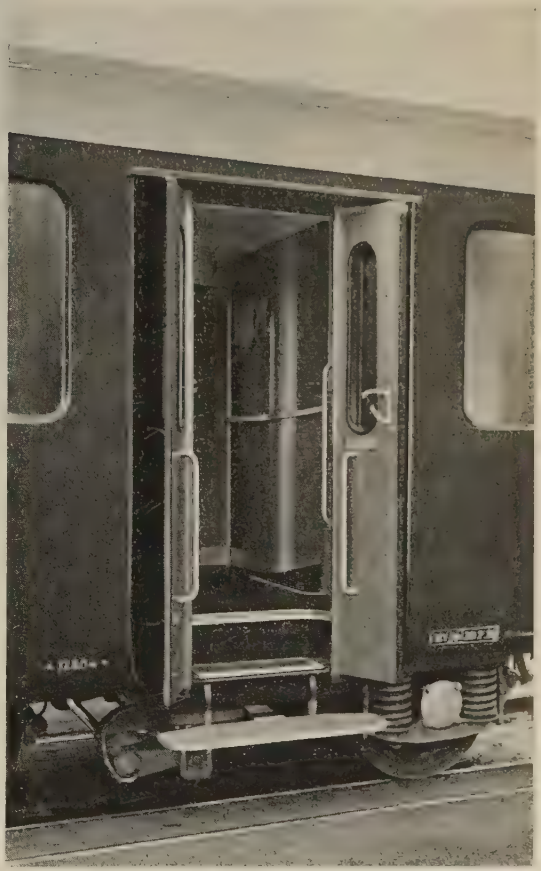


Fig. 34. — Entrance door and steps.

the « on » periods are usually longer than the « off » periods, and the temperature in the compartment is slowly raised. When the temperature has reached 20.7° C, the compartment thermostat again connects the differential thermostat for less intensive heating, and the process is repeated.

If the ambient temperature, during a trip through a warm region, reaches 18° C, the heating unit is permanently cut out whilst the blower continues to run. The coach is then merely ventilated, and this also applies throughout the summer season. Heating is resumed when the ambient temperature drops below 18° C. The regulating process is illustrated in figure 33 which shows the temperature of the heated air as a function of the ambient temperature. The two dotted bands represent the regulating range of the differential thermostats. The straight line rising from left to right on the top part of the diagram represents the temperature of the forced air during pre-heating. The straight line at the bottom of the diagram represents the temperature in the compartment. The rising right-hand section of that line represents ventilation without heating,

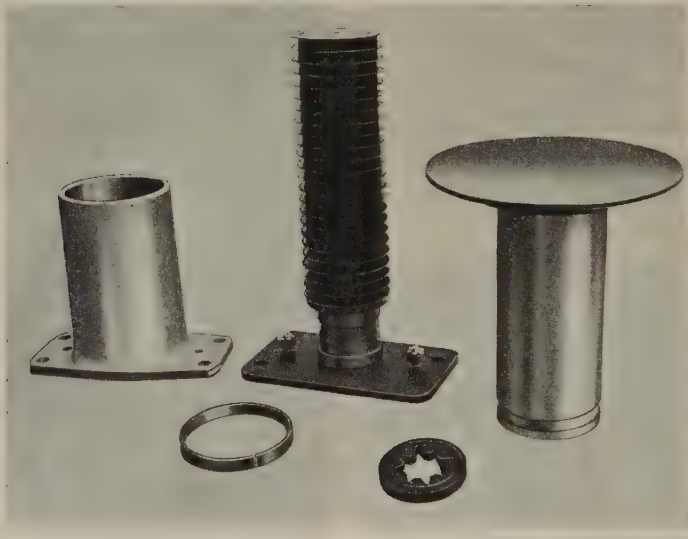


Fig. 35. — Component parts of rubber spring type buffer.

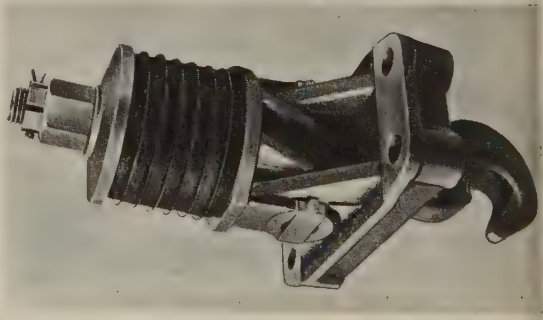


Fig. 36. — Draw gear with rubber spring.

when the temperature in the compartment is virtually the same as that of the forced air. As the heater itself has a fairly high time constant, the frequency of successive « on » and « off » switchings is low. Passengers will therefore not notice the intermittent working of the heater.

overcome, the new forced air heating has been found completely satisfactory. The preheating period is about as long as with an amply rated direct heating system. The two regulating ranges and the working of the electric control are well adapted to the heating power requirements. From a hygienic point of

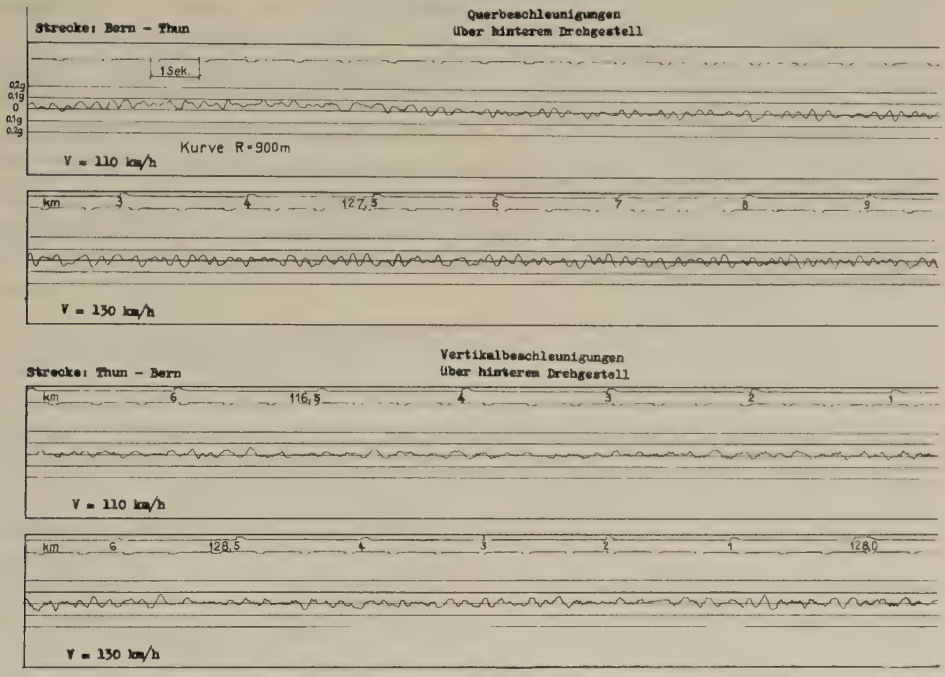


Fig. 37. — Diagrams of transverse and vertical accelerations of standard coach in new condition.

N. B. — Querbeschleunigungen über hinterem Drehgestell = transverse accelerations above the rear bogie. — Vertikalbeschleunigungen... = vertical accelerations. — Strecke = line.

In the spring and autumn, when the heating power demand is low, the compartment circuit-breaker is placed in the half-way position. In that case, the heating is exclusively controlled by the differential thermostat for less intensive heating.

After a few teething troubles had been

view, the main advantages are the filtering of all solid particles of a size exceeding 5 micron and the frequent air changes, especially also during the summer.

7. **Doors.**

All the doors are of light metal. The communicating door between the two

compartments is mainly glazed in order to permit a view from one compartment to the other. The compartment doors and the doors leading to the next coach are simple sliding doors. Their guiding devices are so designed as to ensure good tightness and to prevent vibrations. safe working, even during snow and frost; compliance with the structure gauge when open; high degree of safety against unintentional opening during running; low maintenance costs and, finally, low first cost. Each leaf is formed by a special extruded profile and consists

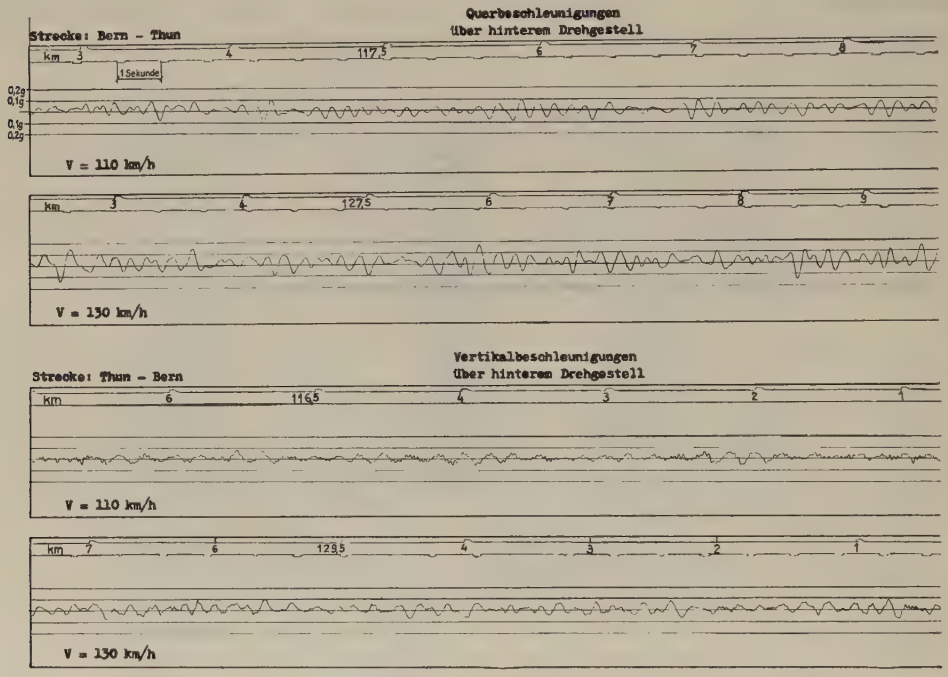


Fig. 38. — Diagrams of transverse and vertical accelerations of a standard coach after 300 000 km.

The entrance doors are two-leaved folding doors (fig. 34). In the older lightweight coaches, all possible types of doors had been used for this purpose : sliding doors, folding doors with one or more units, hinged doors with bent leaves and different operating mechanisms. Hinged doors have been found to be best suited to the numerous requirements which entrance doors must fulfil : easy handling; good tightness; of two hollow units connected by a core. One of these hollow units serves as axis of rotation; the other carries the safety lock and bars. As the door is located at the bogie pivot, it was possible to make full use of the structure gauge, which has facilitated the arrangement of door and steps. The doors of coaches for shuttle trains can be closed from the driving cab by means of electro-pneumatic controls.

8. Draw and buffer gear.

Here too, light metals have been used as far as possible. Light-metal buffer guides have been used successfully on the Swiss Federal Railways for more than twenty years. The weight reduction facilitates the replacement of the buffers. In the draw gear, light metals have, so far, only been used by way of trial. Owing to the good results obtained, it is now possible to use aluminium alloys for all parts of the draw gear except the spring and the hook. Traction hooks made of high-strength aluminium alloys are on trial for ten years; so far, the results have been satisfactory.

The elastic part of the buffer (fig. 35) consists of 24 rubber discs cut out in star shape, which permit a travel of 140 mm. During the first 50 mm of this travel, the force increases slightly so that it was possible to forgo the conventional device of compensated buffers. The final force is about 80 tons. The stored energy amounts to 2 000 kg, and the absorbed energy attains about 90 % of that value. The buffer is also fitted with a sacrificial part mounted in series with the spring. A second sacrificial part is placed in the head beam behind the buffer. The drawgear is likewise fitted with a rubber spring (fig. 36). The final force is about 80 tons. The draw gear forms an assembly unit which is fastened to the head stock by means of four flexible bolts.

9. Practical experience.

The numerous trial runs carried out on a track in normal maintenance condition at a maximum speed of 130 km/h have shown so good results, on straight track as well as in curves, that it has been possible to forgo the installation of lateral shock absorbers (figs. 37 and 38). On the new coach, the transverse acceleration does not exceed a value of 0.1 g. In the vertical direction, the running stability is also very good. After a kilometrage of 300 000 km, the maximum measured values of transverse and vertical acceleration were 0.2 g and 0.1 g, respectively.

The regulation of the electric heating caused some difficulties at the outset which could, however, easily be overcome. The good air filtering and frequent air changes are specially appreciated. Owing to these advantages in conjunction with the smooth running, the journey is agreeable, and fatigue is reduced.

As regards the mechanical strength of the body of the new coaches, it is not yet possible to say much. On the occasion of a collision, which occurred between a train of standard coaches running at 40 km/h and a shunting rake running at 30 km/h, the standard coaches were not damaged, and there were no serious injuries.

The standard coaches have been in service for a period still too short for any judgment to be passed on other aspects of their performance.

[625 .244 (06]

An European railway achievement,

by Fernand DELORY,

Directeur général honoraire de la Société Nationale des Chemins de fer Belges.

Président de la Société Ferroviaire Internationale des Transports frigorifiques.

Within the framework of European railway achievements, it will no doubt be of interest to report one which has its own very special place and which from more than ten years experience can certainly be claimed to be successful. This is the International Railway Refrigerated Transport Company (INTERFRIGO).

This company is a co-operative society by virtue of the Belgian law. Its social and administrative headquarters are in Brussels and the offices of its General Management in Basle.

Created in 1949, it has just celebrated its Xth anniversary. The object of this Company is to carry out the refrigerated international transport of perishable foodstuffs. For the first time in history, twelve European railway systems have grouped themselves together to work in common, on a commercial basis, part of their railway traffic, applying uniform contracts and conditions as well as common tariffs.

When the preliminary studies which led to the creation of Interfrigo were commenced, it was immediately agreed unanimously to entrust the working of the international refrigerated traffic to a special organisation, but there was some hesitation as regards the form such an organisation should take. Was it to be a business company or an international office ? The choice fell upon the business company and after ten years working, it must be admitted that this choice was a happy one.

What were the ideas leading up to this scheme ?

The leading idea was that the transport of perishable foodstuffs justified co-ordinated organisation both from the commercial point of view and as regards the operating properly so called, as well as putting into common use the costly special types of rolling stock in order to do away with as far as possible the inevitable gaps due to carrying seasonal products.

Canvassing for traffic, supervising the running of the wagons both loaded and empty, operations in connection with freezing and temperature regulation during the run are all jobs that require centralised co-ordination and great flexibility.

* * *

Twelve railways are members of Interfrigo at the present time. They are : British Railways (B.R.), the German Federal Railways (D.B.) the French Railways (S.N.C.F.), the Belgian Railways (S.N.C.B.), the Netherlands Railways (N.S.), the Italian State Railways

(F.S.), the Swiss Federal Railways (C.F.F.), the Danish State Railways (D.S.B.), the Luxemburg Railways (C.F.L.), the Spanish Railways (R.E.-N.F.E.), the Greek Railways (C.E.H.) and the Turkish State Railways (T.C.D.D.). Altogether these railways operate 154 000 km (95 700 miles) of lines and the population of their countries totals 289 millions.

* * *

There are two classes of members : the founder members and the others.

The former have the right to be represented on the Administrative Council and have agreed to guarantee the loans to the company up to the equivalent of 75 million Belgian Francs in their national currency.

At the present time, the Belgian, British, Danish, Dutch, French, German, Italian and Swiss Railways belong to this class.

The company therefore has a permanent guarantee covering a loan of 600 million Belgian francs.

As regards participation in the Administrative Council, the General Assembly is able to give an administrative mandate to other companies which are not founder members.

* * *

The organisation of the company includes :

— a General Assembly;
— an Administrative Council;
— a College of Auditors;
— a General Management;
— foreign representatives.

General Assembly. — The members of this Assembly are the delegates of the member railways. The Assembly has the legal and statutory powers and prerogatives of a co-operative society. Each year, before the end of the first quarter, the Council submits its annual report to it as well as the accounts for the year which has just ended.

Administrative Council. — According to clause 16 of the statutes, the Administrative Council is invested with very extensive powers to carry out all the acts of administration in connection with the company. It has in its competency all powers which are not reserved by law or the statutes to the General Assembly. The Council can delegate part of its powers either to administrators or to other persons. At the present time, such delegations of power have been granted to the President of the Council and the General Manager.

College of Auditors. — The operations of the company are controlled by a College of at least 3 auditors, elected by the General Assembly. At the present time, there are four designated by the German, Belgian, Italian and Swiss Railways. Working separately or collectively, they have the right to inspect the books and papers of the Company as often as they consider necessary. Each year, they present to the ordinary General Assembly, responsible for approving the statement of accounts, a report on their supervisory activities.

General Management. — From the beginning, the Council was of the opinion that the Management of the

Company should be sited in Basle, the point of intersection of the railways of three founder members : France, Germany and Switzerland. Experience has shown that this was a wise choice.

The Management includes : a General Manager and 4 Heads of Departments (General affairs, operation, commercial and technical). At the beginning of 1960, the total number of staff amounted to some 40 employees.

Foreign representatives. — The representation of the Company is entrusted to :

— in the case of the member Administrations :

in Germany, the German Federal Railways and the Transthermos Company;

in England, the British Railways;

in Belgium, Refribel;

in Denmark, the Danish State Railways and Transthermos;

in Spain, the Transfesa Company;

in France, the S.T.E.F.;

in Greece, the Greek Railways;

in Holland, the Netherlands Railways;

in Italy, the Italian State Railways;

in the Grand Duchy of Luxemburg, the Luxemburg National Railways Company;

in Switzerland, the « Frigo-Suisse »;

in Turkey, the Turkish State Railways Administration;

— in the case of Administrations which are not members of the Company :

in Austria, Transthermos;

in Bulgaria, Despred;

in Hungary, Masped;

in Roumania, Romtrans;

in Czechoslovakia, Metrans;

in Jugoslavia, Jugosped.

In order to be able to carry out its responsibilities in connection with the traffic, Interfrigo has made agreements, with the Railway Administrations and their affiliated or associate companies, in which the conditions governing this management are laid down.

Traffic and rolling stock.

Improving the transport of perishable foodstuffs depends :

— on making available to clients the rolling stock best suited for the traffic in question;

— on co-ordinating and extending the freezing services;

— on supervising such traffic.

To carry out these duties, Interfrigo has at its disposal insulated and refrigerated wagons belonging to its members as well as stock of its own.

The large stock available consists of a variety of types making it possible to adapt the rolling stock to the transport requirements :

insulated wagons whose sides, floor and roof are covered with insulating material to restrict the exchange of heat and cold with the exterior. This type of wagon is suitable for the transport of frozen or deep frozen products, fresh fish in ice, bananas and potatoes;

refrigerated wagons having bodies similar to those of the insulated wagons

Interfrigo wagons for British loading gauge. 1951-1952 construction.

but with ice boxes to take the refrigerating material: ice, mixture of ice and salt, dry ice. These wagons are also equipped with fans intended to circulate the air in the wagon over the ice and the goods being carried. They are suitable for the transport of fruit, fresh vegetables and dairy produce. They can also be fitted with hooks, in which case they are used to carry meat. Refrigerator wagons producing their own refrigerated atmosphere are not widely used in Europe.

* * *

Shipment on the Zeebrugge ferry-boat of an Interfrigo wagon, built in 1951-1952 for the British loading gauge.

The Table on the following page gives the essential characteristics of the different types of wagons used by Interfrigo.

The rolling stock, belonging to Interfrigo at the end of 1959, consisted of 908 units, 525 of which were built in

	built in 1951-1952 G.A.	built in 1951-1952 G.C.	Interfrigo U.I.C.-O.R.E. 1957-1958	D.B. and T.T. Universal	S.T.E.F. continental refrigerator	old types G.A.	old types G.C.
Tare	16.6 to 17.5 t	17.5 to 17.8 t	15.9 to 16.4 t	15.9 t	16 t	15 t	15 t
Loading limits(1) Ordinary regime .							
A	15 t	15 t	15.5 t	15 t	15.5 t	15 t	15 t
B/C	17 t	16 t	19.5 t	16 t	19.5 t	15 t	15 t
S regime							
A	15 t	15 t	15.5 t	15 t	15.5 t	15 t	15 t
B/C	17 t	16 t	19.5 t	16 t	19.5 t	15 t	15 t
Area	17 m^2	19.5 m^2	22 m^2	19 m^2	19.2 m^2	14 m^2	16 m^2
Volume	31 m^3	40 m^3	46 m^3	36 m^3	40 m^3	27 m^3	30.5 m^3
Insulation . . .							
walls	140 mm	140 mm	120 mm	300 mm	100 mm	129 to 140 mm	129 to 140 mm
roof	140 mm	140 mm	120 mm	300 mm	120 mm		
Ice containers							
number . . .	2	2	2	2(2)	2	2	2
position. . . .	end walls	end walls	end walls	end walls	end walls	end walls	end walls
volume	3.5 m^3	4 m^3	6.4 m^3	4.2 m^3	4.5 m^3	4 m^3	4 m^3
Fans	electric or wind driven	electric or wind driven	electric except 93 wind driven	wind driven	wind driven	wind driven	wind driven
Grating	metal or wood	metal or wood	metal	wood	wood	wood	wood
Meat hooks . .	some	no	some	yes	no	no	no
Metal casing . .	walls	walls	all over	floor	no	partly	partly
			100 wagons with interchangeable axles				

(1) *Loading limits* : Normal regime : slow goods;
S regime : special regime - fast goods.
A : lines which can only carry 16 t per axle;
B : lines which can carry 18 t per axle;
C : lines which can carry 20 t per axle.
In the case of refrigerated transport, B and C are identical, i.e. 18 t per axle.

(2) These wagons are also equipped with 2 or 3 containers for dry ice sited under the roof and having a capacity of approximately 1 m^3.
Abbreviations : G.A. = English loading gauge. — G.C. = continental loading gauge. — D.B. = Deutsche Bundesbahn. — T.T. = Transthermos. — S.T.E.F. = Société française de transports frigorifiques. — F.S. = Italian State Railways.

1951-1952 and 383 of the U.I.C.-O.R.E. type built in 1957-1958. During 1960 and early 1961, they will be increased to a total of 1 885 wagons on account of the purchase of 375 new wagons being built in Italy and the purchase of 500 wagons from the stock of the Deutsche Bundesbahn.

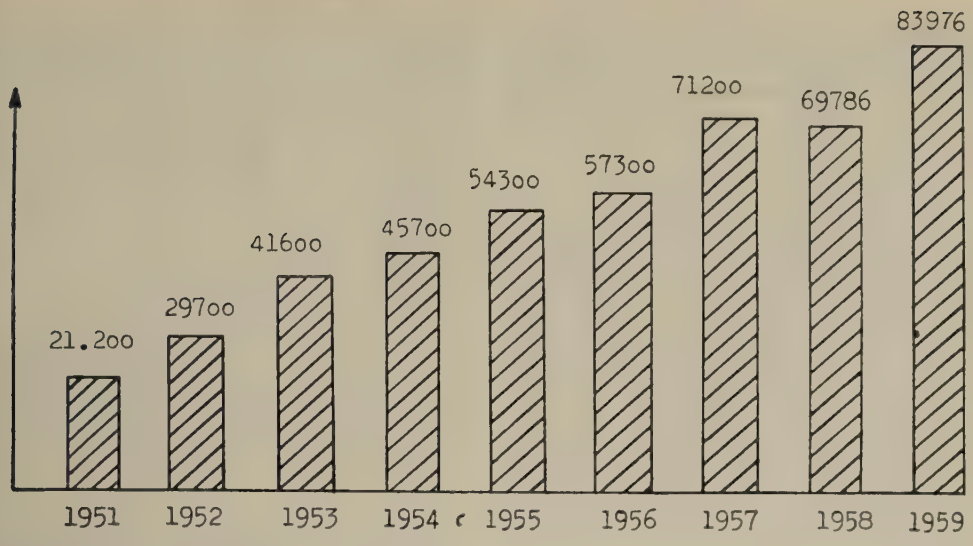
U.I.C.-O.R.E. wagon of great capacity with wind fans. 1957-1958 construction.

Traffic.

As shown in the following graph, the traffic of Interfrigo has grown from 1951 to 1959, from 21 200 to 83 976 journeys. It has therefore increased fourfold.

The total traffic from 1951 to 1959 has reached 474 690 loaded wagons. The heaviest traffic *on departure* has been from Holland, with 149 236 wagons, and France with 124 342. Then comes Western Germany with 57 807 and Belgium with 47 593.

The distribution of the traffic *on arrival* has been 162 501 wagons to Western Germany, 62 157 to Italy and



60 680 to Switzerland. Then come France and Belgium with 45 606 and 36 779 runs respectively. As regards the kind of products carried, the 474 690 wagons have been used as indicated hereafter :

Bananas	85 691
Other fruit	72 877
Fresh meat	46 922
Fresh vegetables	46 765
Salads	31 822
Potatoes	25 064
Frozen food	24 813
Fish (sea)	23 552
Milk, butter, eggs, cheese	23 065
Ham, lard	11 631
Cut flowers and plants	6 215
Poultry and game	4 524
Citrus fruits	4 446
Various	16 386

The proportion of wagons rented and wagons belonging to the Company has altered over the years as the rolling stock owned by Interfrigo has increased :

1951, out of a total of 21 216	19	Interfrigo
1952, out of a total of 29 720	5 475	Interfrigo
1953, out of a total of 41 626	13 350	Interfrigo
1954, out of a total of 45 097	12 822	Interfrigo
1955, out of a total of 54 312	13 949	Interfrigo
1956, out of a total of 57 229	14 096	Interfrigo
1957, out of a total of 71 158	14 471	Interfrigo
1958, out of a total of 69 786	20 890	Interfrigo
1959, out of a total of 83 308	24 308	Interfrigo

In the last two years, the proportion owned by Interfrigo has increased to 29.93 % in 1958 and to 28.95 % in 1959; that of rented wagons being 70.07 % and 71.05 %.

The considerable increase in Interfrigo rolling stock in 1960 and 1961 will make an appreciable difference to these proportions, and it is estimated that Interfrigo will own more than 40 %. It has been agreed that the stock owned by the company can reach a number sufficient to work half the international refrigerated traffic, the other half being transported in rolling stock belonging to the member railways. Such an agreement may however be revised subsequently.

Financial regime. — Results.

The first studies concerning the setting up of Interfrigo began in 1946, i.e. soon after the end of the war. The European Railway Administrations were confronted with serious financial difficulties. It was not possible at that time to find much capital on which to found our Company.

For this reason its capital is small: minimum, 4 800 000; maximum, 10 million Belgian francs. At the end of 1959, it amounted to 6 300 000 Belgian francs representing 126 member shares each of 50 000 francs.

From the beginning, the essential objective of the Company was to acquire a stock of wagons which meant a heavy capital investment. The smallness of the capital might be a hindrance to obtaining the necessary loans. Therefore the railways were asked to give guarantees and the statutes of the Company lay down that these railways undertake to guarantee loans to the sum of 50 million Belgian francs in their own currency. Since then, this guarantee has been increased to 75 millions per railway and as, at the present time, there are eight railways who are founder members, the Company has a permanent guarantee of 600 million Belgian francs. On the 1959 balance sheet, the proportion of this sum used to guarantee loans in hand amounted to 348 million Belgian francs. The Company has never had any difficulty in finding the necessary capital to buy its rolling stock.

The results obtained during the first ten years, the adoption of a sound financial policy, the constant increase in the European standing of the Company have greatly consolidated its position, and there is every reason to think that in the future it will be able to obtain all the capital it needs on the European market to develop its rolling stock and, if necessary, for other objectives in line with its social objectives.

* * *

The financial results have obviously followed the progress of the traffic; the gross profits amounted to:

1 247 000 francs in 1951, 15 756 000 in 1952, 28 255 000 in 1953, 33 928 000 in 1954, 33 481 000 in 1955, 33 503 000 in 1956, 41 053 000 in 1957, 59 769 000 in 1958 and 72 484 000 in 1959.

From 1951 to 1959, the Company has made a total gross profit of 326.8 millions, which has been distributed in the following way:

Trade expenses . . .	52.5 millions
Sinking fund	179.3 millions
Interest on loans. . .	80.8 millions
Dividends, reserves, insurance and miscellaneous	14.2 millions
	326.8 millions

From whence does the Company obtain its funds ?

1) from the surcharges paid for refrigerated transport by clients renumerating the refrigerator services;

2) the rates per kilometre paid by the railways in return for Interfrigo putting the necessary wagons at the disposal of their clients;

3) demurrage charges paid by clients who do not unload within the stipulated times;

4) receipts from the refrigerating service (icing and re-icing).

As regards costs, these are in the main :

— trade expenses;
— hiring of stock;
— commissions;
— cost of the refrigerating services;
— maintenance of the stock;
— sinking fund;
— interest on loans.

* * *

The total amount of capital invested amounted to 442 millions on the 31st December 1959. The Company has taken out the necessary loans in Belgium, France, Holland and Switzerland for a total of 413 millions.

* * *

It is as well to stress the importance of our sinking fund policy for the wagons, within the authorised limits. The 1959 balance sheet shows a total sinking fund for the wagons of the first two series amounting to 168 milions on a capital investment of 395 millions, i.e. 42.5 %. The spread over between the industrial sinking fund period and the repayment of the loans has made it possible to create a temporary reserve of capital which for the time being facilitates the financing of our capital charges as well as expenditures for the general overhauls of the stock which occur periodically and are very high.

The future of the company.

The unanimous opinion of those who follow the movement of refrigerated traffic in Europe is that in the years to come this traffic will continue to increase.

Since the Danish State Railways joined us, our Company includes all the main European Railways exporting perishable foodstuffs. New progress will therefore not take the shape of geographical expansion of our activities, but lie in the development of production and consumption of foodstuffs, as well as the creation of new markets at ever increasing distances, thanks to the rapidity and quality of refrigerated transport. Everything points to the fact that

the continuous increase in production in France, Greece, Holland, Italy, and Turkey will continue, and will be accompanied by a further increase in exports.

The increase in imports is generally constant and closely linked with the improved standards of living and purchasing power of the people. The case of Federal Germany, the biggest market for foodstuffs, may be quoted. In 1956, it imported 1 380 000 tons of fruits and vegetables, 1 657 000 in 1957 and 1 817 000 in 1958.

The Company must take the greatest pains to adapt itself to new requirements by always having available sufficient suitable rolling stock and by following with the closest attention the technical progress achieved in order to apply these immediately, as also the effects of competition from other methods of transport in order to take the necessary steps against it.

[625 .245 : 625 .13 (43)]

Battery-driven tunnel inspection car of the Deutsche Bundesbahn with Diesel charging set,

by Gerhard Wilke, Dr.-Ing., Munich.

(Eisenbahntechnische Rundschau, May 1959).

The German Federal Railways have recently built a self-propelled vehicle for the examination and inspection of tunnels. The article contains a description of the design principles, working conditions, general layout and construction and relates the initial operating experience gathered with this new car.

1. General requirements.

In order to simplify and cheapen the examination and inspection of the tunnels of the Deutsche Bundesbahn, it has been found desirable to place a special vehicle at the disposal of the staff concerned. Existing vehicles of this type were outdated and had, to some extent, become unusable. It was therefore necessary to create a new vehicle, capable of permitting regular tunnel inspection over the largest possible area of the German Federal Railways so that the number of tunnel inspection vehicles can, in future, be kept to a minimum. At the same time, the new vehicle was intended to facilitate inspection and to bring the methods up to date. In such a tunnel inspection car, the means of transporting the observation equipment must be combined with mobile observation platforms, mess and washing room, and a compartment for the evaluation and discussion of the results of observations which have a bearing on major tunnel problems.

As the car was likely to be used very frequently, in Germany as well as abroad, it was necessary to create a modern self-propelled vehicle, not dependent on being hauled by trains except for rare trips over very long distances. For this purpose, however, it was necessary to arrange for the vehicle to be hauled not only by goods trains but also, again to minimize wasteful time, by fast trains running at speeds up to 100 km/h.

In recent years, numerous tunnel examinations throughout the territory of the German Federal Railways have provided ample opportunity to gather experience concerning scheduled main inspections, scheduled intermediate inspections and special inspections of tunnels as well as tests to ensure the preservation of the structure gauge. On the strength of this experience, it has been possible to formulate the following requirements for the design of the vehicle :

1) the prime mover had to be so designed that no exhaust gases are released in the tunnel which might be a nuisance or a danger to the men engaged on tunnel observation outside the vehicle. It was therefore necessary to resort to electric operation; but this operation had to be independent of any extraneous current supply through contact wires as the current in the catenary must of course be switched off during the inspection. The only possibility was therefore the use of accumulator batteries of the type already efficiently used for the battery rail cars of the German Federal Railways;

2) it was necessary to provide observation platforms and sluable structure gauge

templets which permit an unobstructed view on tunnel walls and roof, in front and at any level, in either direction of running;

adequately lit up; for this purpose, it was desirable, for economic reasons, to make use of the latest type of lighting equipment;

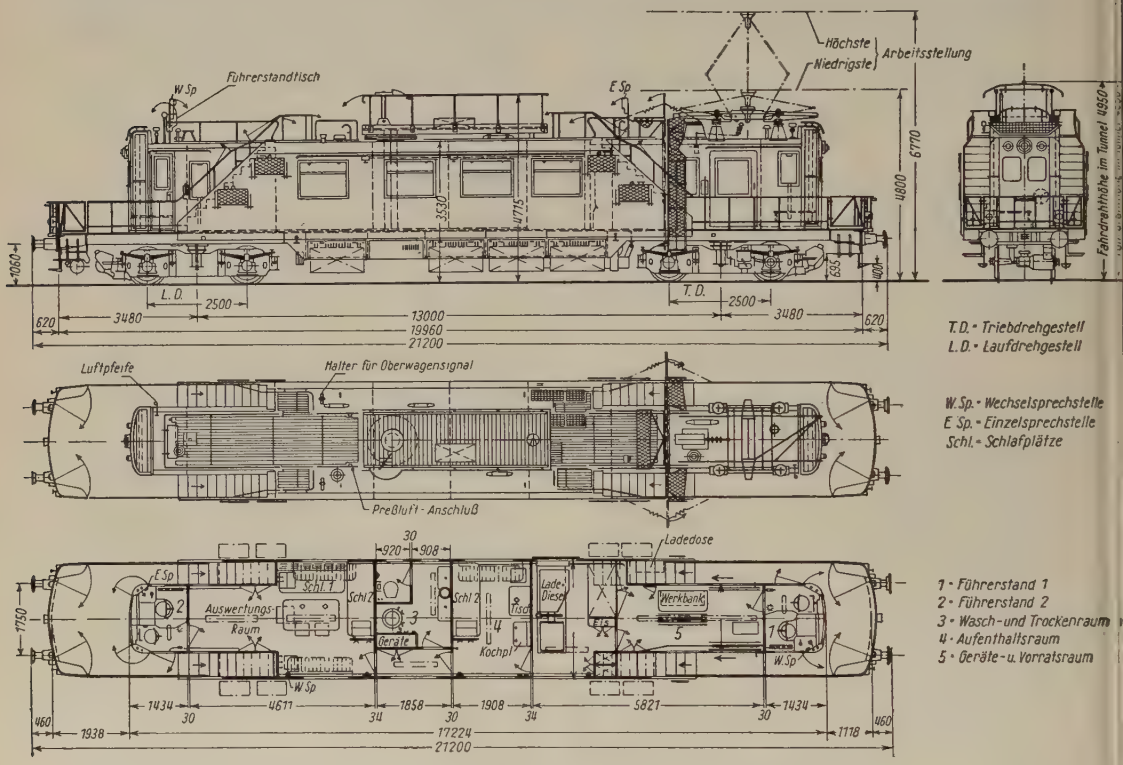


Fig. 1. — Plan and elevation of the tunnel inspection car.

T. D. = motor bogie.
L. D. = carrying bogie.
W. Sp. = intercom. set.
E. Sp. = one-way telephone set.
Schl. = sleeping bunks.
1. No. 1 driving cab.
2. No. 2 driving cab.
3. Washing and drying room.
4. Mess room.
5. Equipment and stores.

N. B. — Führerstandtisch = auxiliary control desk. — Höchste-Niedrigste Arbeitsstellung = highest-lowest working position. — Fahrdrahthöhe im Tunnel = level of contact wire in the tunnel. — Luftpfeife = air whistle. — Halter für Oberwagensignal = top signal holder. — Pressluft-Anschluss = compressed air supply. — Ladedose = charging intake. — Auswertungsraum = room for the evaluation of observations. — Geräte = equipments and tools. — Kochplatz = kitchenette. — Lade-Diesel = Diesel charging set. — Werkband = work bench. — Tisch = table.

3) to permit close inspection of the tunnel roof, it was necessary to provide, on the roof of the vehicle, a lifting platform which can also be slued sidewise to an adequate degree. To facilitate rapid inspection, the whole tunnel profile must be

4) to permit a suitable regulation of the running speed, the different observation stands on the vehicle had to be provided with telephone communications with the driver;

5) inside the car, it was necessary to

provide a small workshop for simple work on the measuring equipment, as well as a washing room, as tunnel inspection is an exceptionally dirty job. It was also necessary to provide a room for the evaluation and discussion of results, and to make this room easily convertible into a sleeping room so that the observers are independent of possibly expensive or distant overnight accommodation;

8) finally, it was desirable, for economic reasons, to use a far as possible existing parts of scrapped railcars, such as bogies, motors and batteries. Within reasonable limits, the requirements, listed above therefore had to be reconciled with this requirement, and it is for this reason that, in the event, the speed of the self-propelled vehicle had to be limited to 90 km/h.

Fig. 2. — External view of the vehicle.

6) to enable the car to be hauled by a train, the vehicle had to be designed for a maximum speed of 100 km/h. There was no absolute need for an equally high speed of the self-propelled car, but it was necessary to provide for the speed to be reduced to about 3 to 5 km/h during inspection runs;

7) the working range of the accumulator battery was to be as high as possible so that the battery had to be rated for the storage of a not inconsiderable quantity of electric energy. The battery had to be designed so as to supply power not only for the tunnel inspection runs themselves but also for the runs from and to the charging stations, since preliminary investigations had shown that it would be uneconomic to use some other mode of traction for this purpose;

2. General arrangement.

These requirements were met by adopting the general arrangement illustrated in figures 1 and 2. Dimensions and arrangement of the driving equipment were governed by the function of the vehicle and by the desire to encroach as little as possible on the floor area available. Batteries and driving motors are therefore accommodated below the car floor so that the whole space above the floor can be utilized to the full. At either end of the enclosed car body is an open observation platform (fig. 3). The end wall edges of the car body form troughs for fluorescent light fittings, capable of lighting up the walls and roof of the tunnel. From these end platforms, flights of stairs, which can easily be negotiated, lead to the roof and to the roof-mounted sluing platform (fig. 1). Tip-

up stands are provided at intermediate levels which, like the spring-actuated gauge probing equipment, can be swung out during the inspection run (fig. 4), and swung back into the sidewall of the car during normal running.

caution apart from the earthing poles which must always be placed on either side of the car.

The enclosed part of the car contains a small workshop accessible through wide doors from either side of the car (fig. 6),

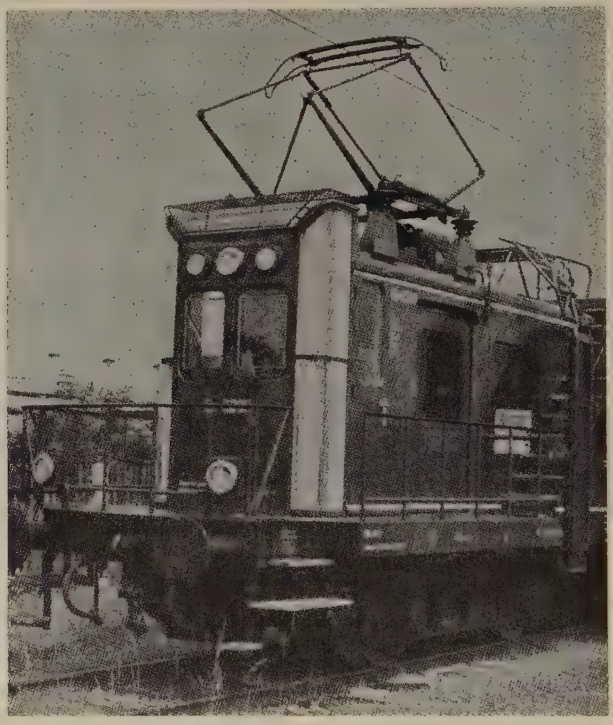


Fig. 3. — Front of vehicle, with observation platform and troughs for the tunnel illumination fittings.

As far as this was compatible with the clearance gauge and the tunnel gauge, the roof areas have been provided with railings, which must also be retracted during normal running. A part of the observation stand on the roof is designed as a sluing platform which can be swung sidewise during inspection runs (fig. 5).

For runs under catenaries, the car is equipped with an earthed pantograph which is in contact with the catenary during inspection runs as an additional pre-

a very small machinery compartment, a washing room, the room for the evaluation and discussion of observations, and a driving cab at either end (fig. 7). These cabs are interlinked with an auxiliary control position on the roof which can be used during tunnel inspection runs. In that case, driver and observer can stand side by side, and can thus communicate even more rapidly and easily than by telephone.

The lighting equipment mentioned

above, arranged at the edges of the end walls, consists of fluorescent light fittings which are so rated that the walls and roof of the tunnel are illuminated over a distance of about 8 to 10 m immediately ahead of the car. For this purpose, each end is equipped with 30 white fluorescent lights of 40 W and 1.20 m length, with maximum possible lighting current. On the roof, plugs are provided for additional hand lamps.

The car has an overall length of 21.20 m. To enable the car to be used also on foreign railways, the vehicle conforms to the R.I.C. gauge. Its bogies are of an old type, having been taken from stocks kept for old railcars.

The mechanical parts were designed and supplied by Wegmann & Co., Kassel, and the electrical equipment by Schaltbau G.m.b.H., Munich and Accumulatoren-Fabrik A.G. (A.F.A.), Hagen.

Fig. 4. — Vehicle with lateral observation stands lowered, structure gauge templets slued out, and earthing pantograph raised.

3. Driving equipment.

Here, the first requirement was to accommodate the battery below the car floor, in the manner generally adopted for battery rail cars, viz., behind ventilating shutters, and accessible from the side of the car (figs. 2, 4 and 5). The bogie-mounted nose-suspended motors are of an old type, having been taken from older battery rail cars. Their one-hour rating is about 2×100 kW. The tractive efforts and speeds provided by these motors are shown in the diagram (fig. 8), which also shows the speeds which can be attained on gradients.

A novel solution, used here for the first time, has been adopted for the charging of the accumulator batteries, and renders the vehicle independent of charging stations. Normally, battery railcars are assigned to a given operating centre where the batteries for most of the services radiating from that centre can be re-charged. But in the case of a vehicle which, like the tunnel inspection car, is used freely and

Fig. 5. — View of vehicle with the roof-mounted platform swung out.

over such a wide operating range, the power supply may cause difficulties at times, either because the vehicle cannot return to a charging station in time, or because it cannot readily be fitted in with the charging schedule of that station. For that reason, the car has been equipped with a small Diesel-electric set with a continuously rated output of 50 kW, sufficient to enable the vehicle, with a battery of 260 kWh storage capacity and three hours discharge, in floating battery operation, to cover a distance of 300 km. When the car is stationary or hauled by a train, this set is able to charge the battery from zero to full charge in about eight hours. It is even possible to work the train with this set alone, though at a reduced speed of about 40 km/h, e.g. if the battery is exhausted. In floating battery operation, it is necessary to keep the voltage of such a Diesel-electric set much more constant than is otherwise usual with commercial equipment of this type. For this purpose, modern electronic control equipment has been used, of a type which, because of its modest servicing requirements and freedom from wear, is no doubt destined to be used more and more in German vehicle construction in the near future.

The wish to attain, with the same prime mover, a maximum speed of 90 km/h as well as an easily adjustable sustained working speed of 3 to 4 km/h on all gradients can unfortunately not be fulfilled. For slow working, which requires comparati-

vely little power, a separate nose-suspended 25 kW shunt-wound motor has therefore been provided.

The traction motors are powerful enough to move not only the tunnel inspection car itself, which weighs approximately 58 tons, but also a trailing load of 20 tons, corresponding e.g. to a measuring car or similar vehicle.

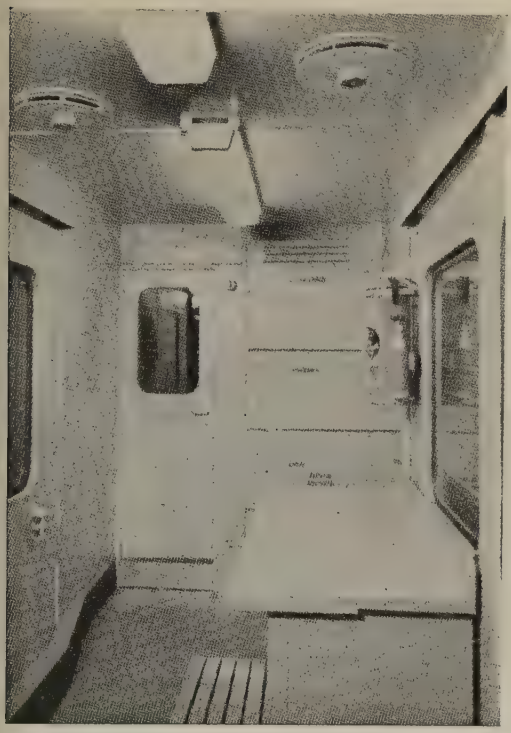


Fig. 6. — Workshop room.

Fig. 7. — Driving cab.

4. Experience from measuring and trial runs.

The newly developed vehicle has already been used for extensive measuring and trial runs which were intended to prove the suitability of the vehicle for its purpose, as well as the practicability of the novel principle of mixed battery and Diesel-electric operation.

The vehicle was found to come up to expectations. With the tractive efforts shown in figure 8, the vehicle was able to attain, on level track, speeds of about 50 km/h in 50 sec, and 90 km/h in 180 sec, with a final acceleration of 0.03 m per sec per sec. Even with a trailing load of 20 tons on a 1 in 40 gradient, it was possible to reach the sustained speed of 40 km/h, envisaged for this contingency, in not more than 150 sec. On the same gradient, and even with trailer, it was possible to control the working speed between 2.1 and 4.5 km/h. As planned, the vehicle is thus able to work, on such gradients, not only downhill but also uphill.

In straight runs on more or less level track, the vehicle was found to be able, with a fully charged battery, buffered by the Diesel-electric set, to cover a distance of 300 to 400 km, depending on the mean speed.

The tunnel illumination provided by the fluorescent light fittings was found to be adequate.

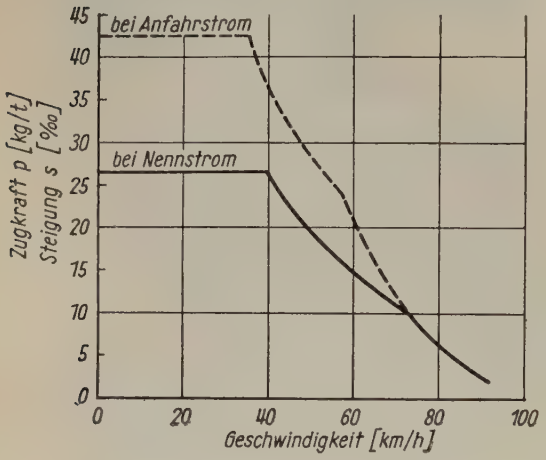


Fig. 8. — Tractive effort-speed and gradient-speed diagram.

N. B. — Zugkraft = tractive effort. — Steigung = gradient. — Geschwindigkeit = speed. — Bei Anfahrstrom = with starting current. — Bei Nennstrom = with rated current.

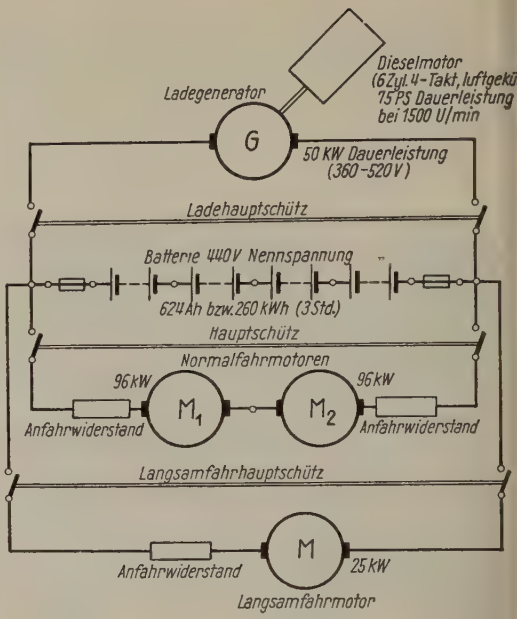


Fig. 9. — Basic connection diagram.

N. B. — Dieselmotor... = 6-cylinder, 4-stroke, air-cooled Diesel engine with a continuous output of 75 HP at 1 500 r.p.m. — Ladegenerator = charging generator. — 50 kW Dauerleistung = 50 kW continuous rating. — Ladehauptschütz = charging master contactor. — Nennspannung = rated voltage. — Hauptschütz = master contactor. — Normalfahrmotoren = normal traction motors. — Anfahrwiderstand = starting resistance. — Langsamfahrhauptschütz = master contactor for low-speed running. — Langsamfahrmotor = traction motor for low-speed running.

[656 .212 .5 (42)]

Automatic wagon control in marshalling yards.

(*The Railway Gazette*, May 13, 1960).

The Dowty system of wagon control which has been under active test and development for the past 12 months represents an entirely new approach to marshalling yard problems.

Using small hydraulic units bolted at intervals to the inside of the track, automatic speed control is obtained by means of vertical pressures on the wagon wheel flange as it passes along the rail. This allows a simple and flexible installation in which short running high buffing speeds, and wagon damage are reduced to negligible proportions.

At present there are three basic types of units available : retarders, booster-retarders, and arresters. The retarder is a completely self-contained unit which reduces the speed of a wagon travelling in excess of a design value (say 3 1/2 m.p.h.) while having no effect on wagons moving at lower speeds.

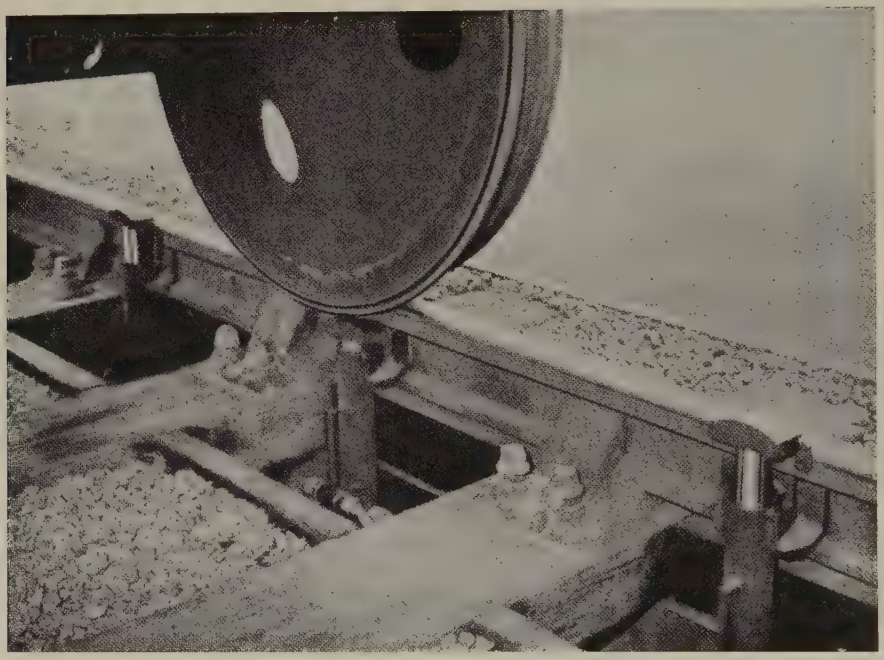
Hydraulic power.

The booster-retarder is operated by a hydraulic power pack to which it is connected by suitable pipe-lines. As in the case of the retarder, it reduces the speed of wagons travelling above the design value but, for wagons travelling at speeds less than this, it releases energy by thrusting against the wheel flange, thus speeding up the vehicle.

The arrester brings a wagon completely to rest and is used near the departure end

of the sidings. It can be rendered inoperative by remote control.

From the foregoing, it can be seen that (by selecting the correct type of units) wagon speeds can be accurately controlled on any slope without the need for complex equipment.



The main advantages of the system are :

i) greatly reduced wagon and freight damage resulting from overspeeding and de-railment delays, mis-shunting, and short running;

ii) elimination of conventional retarders;

iii) reduction of hump-clearance points distance : conventional retarders and speed measuring lengths are not needed;

iv) control at all times of wagons to an accurately pre-determined speed, independent of wind or rolling resistance;

v) variable pre-determined speed setting;

vi) elimination of electronic and separate speed measuring equipment;

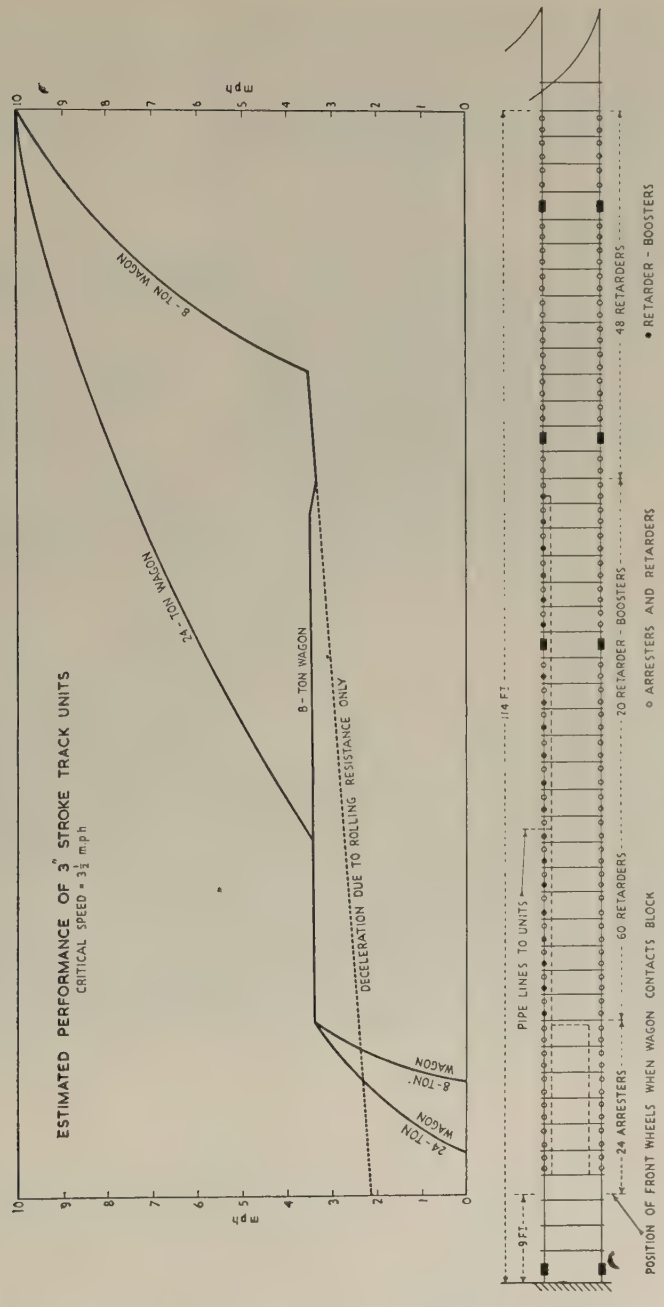
vii) elimination of shunting engine : wagons will be bunched up in the rake, ready for coupling;

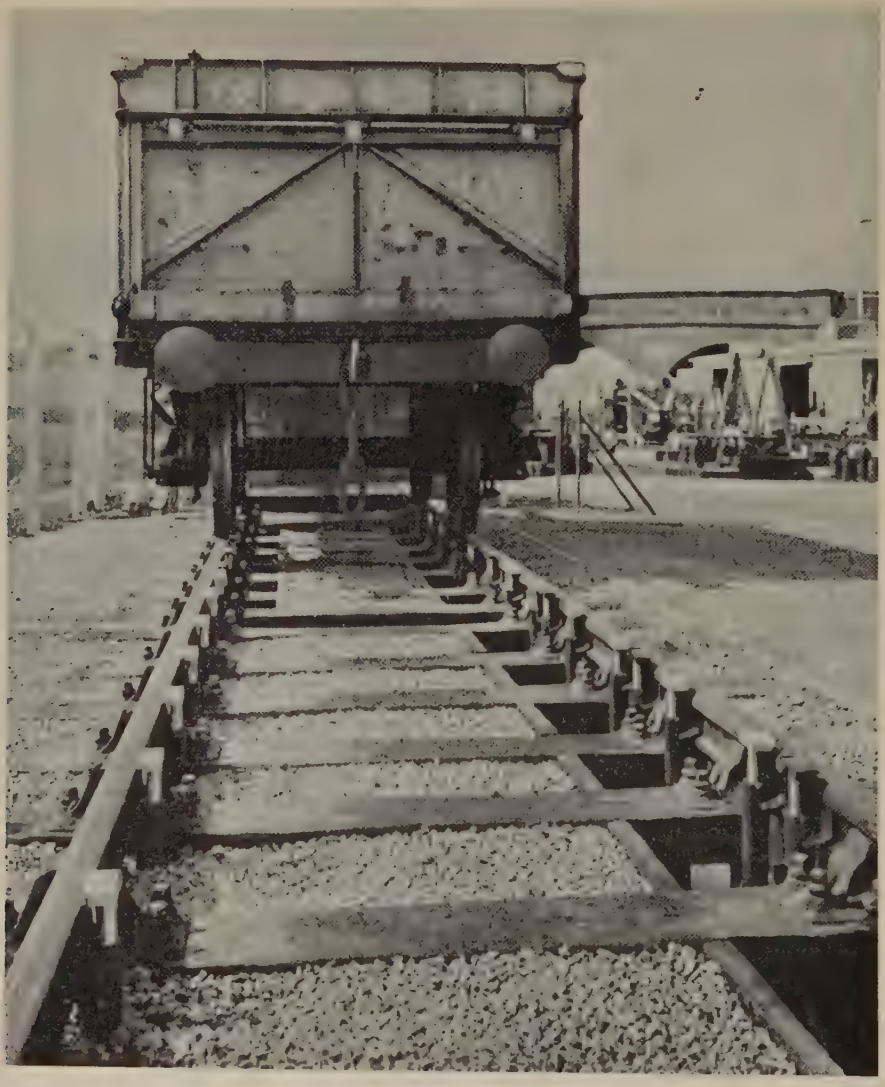
viii) unaffected operation in varying atmospheric conditions, and in temperatures as low as 20° F.

The principle of operation of the retarder-booster unit, shown diagrammatically on the following page is as follows :

in the static position the supply pressure is contained in the central stem by the position of the cut-off valve and slide valve.

When retarding, rapid depression of the piston by wagon wheel flange lifts the speed control valve to seal against the valve stop. This causes an instantaneous rise in internal pressure, which acts on


ESTIMATED PERFORMANCE OF 3" STROKE TRACK UNITS
CRITICAL SPEED = 3½ m.p.h
8 - TON WAGON
24 - TON WAGON
8 - TON WAGON
DECELERATION DUE TO ROLLING RESISTANCE ONLY
8-TON WAGON
24-TON WAGON
mph
PIPE LINES TO UNITS
114 FT
9 FT
24 ARRESTERS
60 RETARDERS
20 RETARDER - BOOSTERS
48 RETARDERS
POSITION OF FRONT WHEELS WHEN WAGON CONTACTS BLOCK
o ARRESTERS AND RETARDERS
• RETARDER - BOOSTERS



the back of the cut-off valve via the port(s) in the slide valve.

The cut-off valve moves down on its stop under the combined influence of spring and pressure load and in doing so cuts off the lower outlet ports in the valve stem.

Further movement of the piston carries the slide valve downward, trapping pressure behind the cut-off valve and thus locking it in position.

The pressure continues to rise in the main cylinder until it is high enough to open the non-return valve at the bottom of the unit, forcing oil back into the supply line. The resistance so built up gives a retarding action thus dissipating some of the wagon energy.

The return stroke of the plunger is effected by a coil spring, oil being drawn in from the return line. The cut-off valve is held down by the hydraulic oil lock above it, preventing high pressure oil influencing the ascent of the plunger.

The last fraction of upward motion releases the hydraulic lock and the cut-off valve rises. The slide valve now prevents transfer of high pressure oil to the underside of the plunger.

In the case of a wagon travelling at less than 3 m.p.h., a different operational sequence occurs.

As the wheel flange depresses the piston, oil escapes from the main cylinder to return via the orifice in the speed control valve. Further downward movement carries the sleeve valve to a point where its port(s) coincide with the lower ports of the valve stem.

This allows the supply pressure contained in the stem to enter the main cylinder and lift the speed control to seal off against the valve stop.

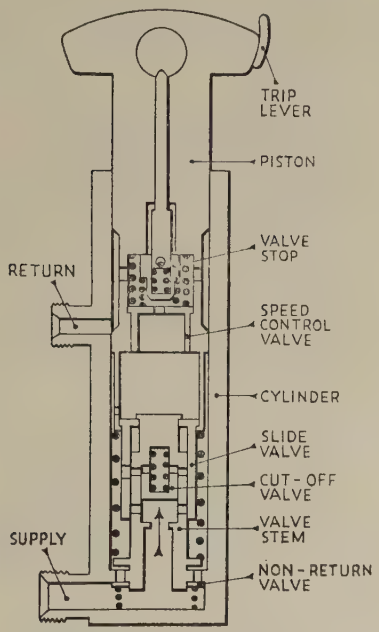
Thus, with supply pressure now acting over the whole area of the piston, it rises and imparts energy by thrusting against the wheel flange.

The unit has one other important function in that it acts as a retarder should a wagon be reversed over it after striking, say, another wagon in a rake during shunting.

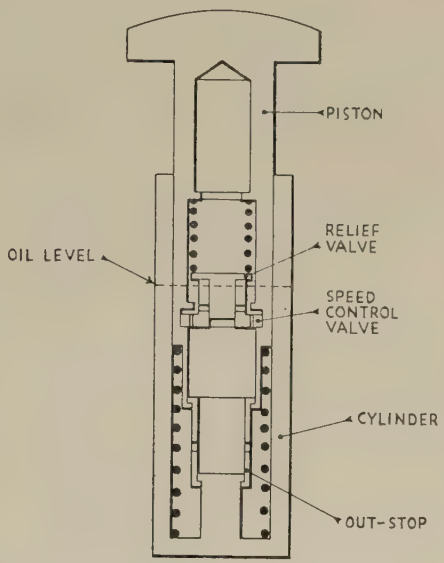
In this event, a trip lever mounted on the piston head produces the following results :

i) the reversing wheel flange depresses the trip lever which operates a cam mechanism inside the piston head;

ii) movement of the cam forces down the valve stop spindle, thus sealing off the central orifice of the speed control valve;



RETARDER-BOOSTER



RETARDER

iii) depression of the piston by the wheel flange now meets a retarding force caused by displacement of oil from the plunger cylinder to supply via the non-return valve.

Should it be desired to carry out normal traffic operation over lines fitted with retarder-boosters, the units may be made non-operative by releasing the supply pressure. The plungers still move in sympathy with the wheels but no energy transfer takes place.

Retarder unit.

The principle of operation of the retarder unit is as follows :

in the static position the unit is fully self-contained and only partly filled with oil;

in the retarding position, rapid depression of the piston by a wheel flange causes an increase in internal pressure, which lifts the speed control valve and seals off the orifices in its periphery against a travel stop.

Further increase in pressure, arising from piston movement, opens the relief valve allowing oil to pass out through the holes in the side of the speed control valve.

Energy is thus dissipated from the wheel flange because of the effort required to force the oil through the relief valve.

After passage of the wheel, the piston extends at a rate controlled by the peripheral orifices in the speed control valve, the relief valve having closed by this time. A telescopic outstop holds the piston when fully extended.

Should a wagon be travelling at less than 3 m.p.h. when its wheel flange contacts the retarder the following sequence occurs :

The piston moves down but the pressure rise is insufficient to « blow » the relief valve against its spring load, the oil escaping through the peripheral orifices of the speed control valve. Thus the unit collapses virtually without detracting from the wheel energy.

Operational lay-out.

Economically, it is preferable to use a combination of self-contained retarder units with retarder-booster units. This arrangement keeps pipeline costs to a minimum and simplifies servicing.

The whole system can best be illustrated by the accompanying diagram which indicates what can be accomplished on a short stretch of track at the manufacturer's works at Ashchurch.

It can be seen that from 10 m.p.h., an 8-ton wagon is under control after 40 ft. and a 24-ton wagon under control after 90 ft. This diagram is based on adverse rolling resistance and level track. In practice, some small deviation from this performance is expected.

Further details can be obtained from Dowty Hydraulic Units Limited, Ashchurch, Gloucestershire.

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[016. 385 (02]

I. — BOOKS.

In French.

1960 **669**
AZAUD (R.).
Aide-mémoire Dunod : Métallurgie.
Paris, Dunod, éditeur. 2 volumes (10 × 15 cm). ome I: 324 pages avec 29 figures; Tome II: 300 pages vec 78 figures. (Prix : relié toile, par tome, 6.80 NF.)

1959 **698**
ANCUTT (F.) & HUDSON (J.C.).
La protection par peintures des constructions en acier. raduit de l'anglais par J. OUTIN.
Paris, Dunod, éditeur. Un volume (14 × 22 cm) de VIII + 114 pages, 37 figures. (Prix : broché, 1 200 fr.fr.)

1960 **691** (02
UERRIN (A.).
Traité de béton armé. *Tomes III et IV.*
Paris, Dunod, éditeur, 92, rue Bonaparte. Tome III: n volume (16 × 25 cm) de 320 pages, avec 400 figures.— ome IV: un volume (16 × 25 cm) de 380 pages, avec 70 figures. (Prix : 32 et 42 NF.)

1960 **624** (06
Mémoires de l'Association Internationale des Ponts et harpentes. Volume 19. Année 1959.
ürich, Librairie Leemann. Un volume (17 × 24 cm) e 296 pages et 168 figures. (Prix : 40 fr. suisses.)

In German.

1960 **656** (43)
r. jur. Franz HERETH.
Steuerbegünstigungen und Wettbewerbslage der Deut-hen Bundesbahn. 6. Beiheft, Februar 1960 der Zeitschrift *ie Bundesbahn.*
Darmstadt, Carl Röhrig Verlag. 32 Seiten (21 × 9.5 cm) mit Tafeln. (Preis : kartoniert, DM 4.80.)

1960 **625 .14** (02
Dr.-Ing. habil. Gerhard SCHRAMM.
Oberbautechnik und Oberbauwirtschaft. 1. Auflage.
Darmstadt, Otto Elsner Verlagsgesellschaft. 394 Seiten, DIN A 5, 212 Abbildungen und 22 Tafeln. (Preis : Ganzleinen, DM 30.—.)

1960 **531**
ZILLICH-STIEGLER.
Statik-Leichtverständlich dargestellt. 2. Teil : *Festigkeitslehre.* 17. Auflage.
Berlin-Wilmersdorf, Verlag Wilhelm Ernst & Sohn. 64 Seiten, DIN A 5, mit 80 Bildern. (Preis : gebunden, DM 7.60.)

In English.

1960 **385** (09 (42)
BOX (C.E.).
Liverpool Overhead Railway, 1893-1956.
One volume (9 × 5 3/4 in.) of 189 pages, illustrated.
London : Railway World Limited, 245, Cricklewood Broadway, N.W.2. (Price : 25 s.)

1960 **385** (09 (42)
HAMILTON ELLIS (C.)
British Railway History, 1877-1947.
One volume (9 1/2 × 6 1/4 in.) of 416 pages, illustrated.
London : George Allen & Unwin Limited, Ruskin House, 40, Museum Street, W.C. 1. (Price : 35 s.)

1960 **385** (09
MASKELYNE (J.N.).
Locomotives I have known.
One volume (12 × 9 1/2 in.) of 133 pages.
London : Percival Marshall & Co., Ltd., 19-20. Noel Street, W.1. (Price : 42 s.)

1960 **385** (09 (42)
SANDS (T.B.).
The Midland & South Western Junction Railway.
One brochure of 57 pages, illustrated.
Lingfield Surrey : The Oakwood Press, Bucklands, Tandridge Lane. (Price : 8 s. 6 d.)

1960 **621 .431 .72**
SMITH (D.H.).
The modern Diesel. 13th edition.
Chilton Company, Book Division, Philadelphia, U.S.A. and Iliffe, London. (Price : 17 s. 6 d.)

(1) The numbers placed over the title of each book are those of the decimal classification proposed by the Railway Congress njointly with the Office Bibliographique International, of Brussels, (See « Bibliographical Decimal Classification as applied to Railway ience », by L. WEISSENBRUCH, in the number for November 1897, of the *Bulletin of the International Railway Congress* p. 1509).

[016 .385 (05]

II. — PERIODICALS.

In French.

Acier-Stahl-Steel. (Bruxelles.)

1960 **624 .51 (44)**

Acier-Stahl-Steel, avril, p. 149.

DELCAMP (A.). — Le **pont suspendu** de Tancarville. (4 000 mots & fig.)

Annales de l'Institut Technique du Bâtiment et des Travaux Publics. (Paris.)

1960 **691**

Annales de l'Institut techn. du Bâtiment et des Trav. Publics, mars-avril, p. 313.

VIRONNAUD (L.). — **Importance relative des erreurs de dosage dans la confection du béton.** — Essais statistiques. (14 000 mots, tableaux & fig.)

1960 **691**

Annales de l'Institut techn. du Bâtiment et des Trav. Publics, mars-avril, p. 373.

SAILLARD (Y.). — **Compte rendu des travaux du Comité Européen du Béton.** Conclusions techniques de la 5e Session de Vienne, avril 1959. Préparation de recommandations pratiques européennes de calcul à rupture du béton armé (dimensionnement et vérification des sections). (7 000 mots, tableaux & fig.)

Annales des Ponts et Chaussées. (Paris.)

1960 **656**

Annales des Ponts et Chaussées, mars-avril, p. 155.

EISENMANN (J.). — A propos d'une étude sur l'**économie des transports.** (10 000 mots.)

1960 **624**

Annales des Ponts et Chaussées, mars-avril, p. 217.

VALALAS (D.). — Considérations sur le **calcul des ponts biais.** (7 000 mots & fig.)

Annales des Travaux Publics de Belgique. (Bruxelles.)

1959/1960 **693**

Annales des Travaux Publics de Belgique, n° 5, octobre, p. 457.

DUTRON (R.). — Une proposition de **méthode internationale d'essai des ciments.** Méthode RILEM-CEMBUREAU pour la détermination des résistances mécaniques des ciments. (3 000 mots & tableaux.)

Bulletin de l'Association Suisse des Electriciens. (Zürich.)

1960 **621 .31**

Bull. de l'Ass. Suisse des Electriciens, 16 janvier, p. 15

RIEDER (W.). — Zur **Physik des Niederstrom-Schaltlichtbogens.** (9 600 mots & fig.)

1960 **621 .3**

Bull. de l'Ass. Suisse des Electriciens, 26 mars, p. 249

SCHÜEPP (E.). — **Magnetverstärkerschaltungen** mit kurzer Steuerzeit. (3 750 mots & fig.)

1960 **656 .254**

Bull. de l'Ass. Suisse des Electriciens, 9 avril, p. 362

LHRMANN (G.). — Nachrichten- und Hochfrequenztechnik — *Télécommunications et haute fréquence* (2 450 mots & fig.)

Bulletin de Documentation S.C.E.T.A. (Paris.)

1960 **656 .212 .6**

Bulletin de Documentation S.C.E.T.A., avril, p. 10

Les **manutentions dans l'entreprise vues sous l'angle de la sécurité.** (3 000 mots.)

Bulletin Oerlikon. (Zürich.)

1959 **621 .3**

Bulletin Oerlikon, n° 335, août, p. 138.

OBERRETL (K.). — Le **calcul précis du courant magnétisant de machines asynchrones triphasées.** (4 200 mots & fig.)

Bulletin de l'Office de Recherches et d'Essais de l'U.I.C. (O.R.E.)

1960 **625 .24**

Bulletin de l'O.R.E., janvier, p. 6.

Etude comparative de la traction continue et discontinue des wagons à marchandises. (1 000 mots & fig.)

1960 **625 .213**

Bulletin de l'O.R.E., janvier, p. 17.

Recherche de la **suspension définitive des wagons tombereaux.** (2 000 mots & fig.)

Bulletin scientifique de l'Association des Ingénieurs électriciens sortis de l'Institut Electrotechnique Montefiore. (Liège.)

1960 **621 .31**

Bull. scient. de l'Assoc. des Ing. électr. sortis de l'Institut Electrotechnique Montefiore, janvier, p. 75.

DANTHINE (A.). — **L'utilisation de l'amplificateur magnétique équilibré à haut rendement** pour le contrôle du couple d'un moteur à courant continu en régime transitoire. (5 600 mots & fig.)

lletin de la Société Française des Electriciens. (Paris.)

1960 **621** .31
lletin de la Soc. Française des Electriciens, février, p. 72.
HOCHART (B.). — **Evolution et progrès récents dans construction des transformateurs de puissance** et de sure et dans la construction des condensateurs. (3 550 ots & fig.)

1960 **621** .316
lletin de la Soc. Française des Electriciens, février, p. 82.
FERNIER (B.). — Evolution et progrès de l'**appareil-ge à haute et à moyenne tension.** (3 000 mots & fig.)

1960 **621** .316
lletin de la Soc. Française des Electriciens, février, p. 93.
GAROCHE (P.). — Evolution et progrès récents de **ppareillage basse-tension.** (3 500 mots & fig.)

Bulletin de la Société des Ingénieurs Civils de France. (Paris.)

1960 **721** .9
ll. de la Soc. des Ing. Civils de France (mémoires), mars, p. 15.
DELESQUES (R.). — **Tendances actuelles de la nstruction métallique.** (6 000 mots & fig.)

Bulletin technique de la Suisse Romande. (Lausanne.)

1960 **624** .2
ll. techn. de la Suisse Romande, 23 avril, p. 149.
COURTOT (P.). — **Le calcul à la rupture des poutres béton précontraint** sollicitées en flexion simple. (2 000 ots & fig.)

Bulletin des Transports Internationaux par Chemins de fer. (Berne.)

1960 **385** .62
ll. des Transp. Internat. par Ch. de fer, mars, p. 68.
Session de la deuxième Commission préliminaire de **ision de la CIV.** (3 000 mots.)

1960 **656** .213
ll. des Transp. Internat. par Ch. de fer, mars, p. 77.
KESSELRING (W.). — L'importance et la fonction **embranchements particuliers** dans le trafic par chemin fer. (4 000 mots.)

Bulletin de l'Union Internationale des Chemins de fer. (Paris.)

1960 **656** .2 (4)
ll. de l'Union Intern. des Chemins de fer, mars, p. 51.
Où en est la **normalisation des chemins de fer européens.** 200 mots.)

1960 **385** .113 (4)
Bull. de l'Union Intern. des Chemins de fer, mars, p. 57.
Les **Chemins de fer en 1959.** (Finlande-France). (6 000 mots & tableaux.)

C.F.F. (Berne.)

1960 **625** .18 (494)
C.F.F., avril, p. 4.
GENTON (D.). — Rôle et caractéristiques de l'**atelier central de la voie.** (600 mots & fig.)

1960 **656** .25 (494)
C.F.F., avril, p. 7.
Une précieuse nouveauté : la **palette régulatrice de marche.** (400 mots & fig.)

1960 **385** (06 .11
C.F.F., avril, p. 8.
GSCHWIND (H.). — **Voyage aux Indes.** (1 000 mots & fig.)

1960 **621** .332 (494)
C.F.F., avril, p. 10.
Troisième rail entre Coire et Domat-Ems. (800 mots & fig.)

Chemins de fer. (Paris.)

1960 **656** .222 .5 (44)
Chemins de fer, janvier-février, p. 1.
PORCHER (B.). — Propos sur les **pointes de trafic** à la S.N.C.F. en 1959. (3 000 mots & fig.)

1960 **621** .335 (44)
Chemins de fer, janvier-février, p. 10.
CAIRE (D.). — **L'adaptation des CC 7100 de la Région Sud-Est à la circulation sur la ligne Chambéry-Modane alimentée en courant continu 1 500 volts par troisième rail.** (1 500 mots & fig.)

1960 **625** .232 (44)
Chemins de fer, janvier-février, p. 14.
BRUHAT (L.). — **Modernisation de voitures Nord.** (1 500 mots & fig.)

1960 **625** .214
Chemins de fer, janvier-février, p. 18.
BOISDRAN (G.). — Evolution de la technique des **boîtes d'essieux à graissage mécanique.** (1 000 mots & fig.)

1960 **656** .222 .5 (42)
Chemins de fer, janvier-février, p. 19.
Baron VUILLET. — Encore quelques **performances sur les British Railways.** (3 500 mots & fig.)

Génie Civil. (Paris.)

1960 **621** .335 (493)
Génie Civil, n° 3512, 15 mars, p. 128.
MEYER (E.). — **L'entretien du matériel de traction électrique** à la Société Nationale des Chemins de fer Belges. (1 200 mots & fig.)

1960 **621 .31**
Génie Civil, n° 3513, 1er avril, p. 156 et n° 3514, 15 avril, p. 173.
Les précautions à prendre pour la mise en service des nouvelles centrales thermiques. (5 000 mots & fig.)

1960 **624 .2**
Génie Civil, n° 3513, 1er avril, p. 160.
COÜARD (A.). — La **fissuration à l'effort tranchant des poutres en béton armé.** (1 000 mots & fig.)

L'Industrie des Voies ferrées et des Transports automobiles. (Paris.)

1960 **625 .285 (44)**
L'Ind. des Voies fer. et des Transports automobiles, mars, p. 44.
AMIEIL. — Tourisme ferroviaire : les **autorails panoramiques** de la S.N.C.F. (3 000 mots & fig.)

1960 **625 .236**
L'Ind. des Voies fer. et des Transports automobiles, mars, p. 52.
PROGENT. — Description d'une **chaîne de nettoyage des véhicules.** (1 500 mots & fig.)

L'Ingénieur. (Montréal.)

1960 **669 .1**
L'Ingénieur, n° 181, p. 53.
HONE (A.). — **La rupture fragile de l'acier.** (1 500 mots & fig.)

Rail et Traction. (Bruxelles.)

1960 **385 (09 (42)**
Rail et Traction, janvier-février, p. 3.
VAN GEEL (P.). — La **modernisation** des Chemins de fer Britanniques. (*Suite.*) (6 000 mots & fig.)

1960 **625 .245**
Rail et Traction, janvier-février, p. 39.
FINET (G.). — Le **wagon balançant « rail-route »** pour transports exceptionnels de masses lourdes indivisibles. (1 000 mots & fig.)

Revue Electricité — Electrotechnique Générale. (Bruxelles.)

1960 **621 .31**
Revue Electricité — Electrotechnique Générale, Vol. III, n° 1, p. 3.
NEUHUYS (T.). — **Fabrication des transistors.** (4 200 mots & fig.)

1960 **656 .2**
Revue Electricité — Electrotechnique Générale, Vol. III n° 1, p. 11.
DE VLEMINCK (S.). — **Application des transistors et des diodes semi-conductrices à la télégraphie, la télécommande, la télésignalisation et la télémesure.** (12 00 mots & fig.)

1960 **621 .33**
Revue Electricité — Electrotechnique Générale, Vol. III n° 1, p. 44.
LAMBERTS (P.). — Les **locomotives électriques 50 Hz** avec redresseurs au silicium (6.800 mots & fig.

Revue Générale des Chemins de fer. (Paris

1960 **656 .257 (44**
Revue Générale des Chemins de fer, mars, p. 129.
WALTER. — La double progression de l'**automatisme dans le domaine des installations de sécurité.** (3 000 mo & fig.)

1960 **625 .26 (44**
Revue Générale des Chemins de fer, mars, p. 136.
JOUGLAS. — L'**évolution des ateliers** d'Arles. (2 00 mots & fig.)

1960 **625 .232 (44**
Revue Générale des Chemins de fer, mars, p. 141.
LASSON (J.) & BULTE (J.). — Le **nouveau matériel à voyageurs** des trains rapides de la S.N.C.F. assurant la relation Paris-Lille. (1 500 mots & fig.)

1960 **625 .2**
Revue Générale des Chemins de fer, mars, p. 146.
ARNAUD (P.) et LAMORLETTE (P.). — Un **nouveau type d'équipement générateur pour l'éclairage** des voitures de chemin de fer. (2 000 mots et fig.)

1960 **625 .243 (44**
Revue Générale des Chemins de fer, mars, p. 152.
CHAPON (L.) et BIGNON (P.). — Le **remplacement des toitures métalliques de wagons couverts** S.N.C.F., type Standard A. (3 000 mots & fig.)

1960 **621 .133 .1 (44**
Revue Générale des Chemins de fer, mars, p. 161.
MARTY. — **Equipement au fuel de chaudières de locomotives** utilisées à poste fixe. (1 500 mots & fig.)

1960 **656 .222**
Revue Générale des Chemins de fer, mars, p. 165.
Vitesses ferroviaires. (1 000 mots.)

1960 **621 .335 (44**
Revue Générale des Chemins de fer, mars, p. 171.
Appareil à descendre les essieux et bogies de locomotives électriques. (300 mots & fig.)

1960 **625 .42 (46**
Revue Générale des Chemins de fer, mars, p. 180.
La nouvelle ligne Sagrera-Horta du **Chemin de fer Métropolitain** de Barcelone. (1 000 mots & fig.)

Revue de la Société Royale Belge des Ingénieurs et des Industriels. (Bruxelles.)

1959 **621** .3
vue de la Soc. Roy. Belge des Ing. et des Indust., novembre, p. 459.
ANDRÉ (J.). — **Le germanium et le silicium.** Leurs opriétés et leur élaboration. (4 000 mots & fig.)

1960 **691** (47)
vue de la Soc. Roy. Belge des Ing. et des Indust., février, p. 66.
PADUART (A.). — Développement de la **technique béton armé et du béton précontraint** en U.R.S.S. 500 mots.)

Revue de l'Union Internationale des Transports Publics. (Bruxelles.)

1960 **625** .42
vue de l'Union Intern. des Transp. Publics, vol. IX, n° 1, p. 9.
PLANELL (F.). — La **nouvelle ligne Sagrera-Horta Chemin de fer Métropolitain de Barcelone.** (2 000 mots fig.)

Traction Electrique dans les Chemins de fer. (Bruxelles.)

1960 **621** .335
lletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 3, mars, p. 117.
KILB (E.). — La construction légère des **locomotives ctriques** à 16 2/3 Hz, excellent moyen de rationalisation leur étude et d'abaissement de leurs frais de construction et d'exploitation. (7 500 mots & fig.)

1960 **621** .335
lletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 3, mars, p. 136.
OLSON (P.E.) et JOHNSON (S.). — Les forces nsversales entre roue et rail. Une étude expérimentale. 650 mots & fig.)

1960 **621** .332 (469)
lletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 3, mars, p. 152.
TRITTER (R.) et LORENZ (C.). — L'installation de **ténaires** des lignes de la Companhia dos Caminhos Ferro Portugueses électrifiées en courant monophasé Hz, 25 kV. (3 600 mots & fig.)

1960 **621** .335 (44)
lletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 3, mars, p. 165.
CAIRE (D.). — Les futures **locomotives à courant con-u** 1 500 volts de la S.N.C.F. série BB 9 400. (1 900 ts & fig.)

La Vie du Rail. (Paris.)

1960 **621** .138 .1 (44)
La Vie du Rail, 7 février, p. 3.
FORCE (G.). — **Le dépôt de Thionville.** (1 500 mots & fig.)

1960 **656** .254 (57)
La Vie du Rail, 7 février, p. 13.
PAHIN (J.-A.). — **Liaison radio-électrique par câble guide d'ondes dans le trafic ferroviaire.** (600 mots & fig.)

1960 **656** .223 .1 (44)
La Vie du Rail, 7 février, p. 18.
LEFRESNE (M.). — **Le fichier des voitures voyageurs** de la Région du Sud-Est. (1 200 mots & fig.)

1960 **625** .1 : **621** .33 (44)
La Vie du Rail, 21 février, p. 3.
Electrification Est-Paris. **Un exemple de mise au gabarit : le souterrain de Chalifert.** (3 000 mots & fig.)

1960 **625** .282 (44)
La Vie du Rail, 21 février, p. 16.
La **locomotive S.N.C.F. 040-DG-1 diesel-électrique de 1 400 ch.** (1 000 mots & fig.)

1960 **625** .245
La Vie du Rail, 28 février, p. 5.
Wagons à trois essieux pour le transport des containers à baryte. (800 mots & fig.)

1960 **621** .33 (42)
La Vie du Rail, 28 février, p. 11.
Le **courant monophasé** a franchi la Manche. (1 200 mots & fig.)

1960 **625** .245 (44)
La Vie du Rail, 6 mars, p. 21.
Un **transport très exceptionnel de 216 tonnes.** (600 mots & fig.)

In German.

Archiv für Eisenbahnwesen. (Berlin.)

1960 **385** (43)
Archiv für Eisenbahnwesen, Heft 1, S. 1.
GÜNTHER (A.). — Die **Gemeinwirtschaftlichkeit der deutschen Eisenbahnen** in ihrer geschichtlichen und inhaltlichen. Entwicklung. (25 000 Wörter.)

1960 **656** .235 .6 (4)
Archiv für Eisenbahnwesen, Heft 1, S. 49.
KLAER (W.). — **Direkte internationale Tarife.** Studien zur Rechtsgrundlage, Entstehungsgeschichte und Einführung direkter internationaler Eisenbahngütertarife in der europäischen Gemeinschaft für Kohle und Stahl. (10 000 Wörter, Tafeln & Abb.)

1960 **656** .226 (492)
Archiv für Eisenbahnwesen, Heft 1, S. 76.
OVERMANN (J.). — Der **Stückgutverkehr** bei den Niederländischen Eisenbahnen. (4 000 Wörter.)

1960 **656** .2 (43 + 44)
Archiv für Eisenbahnwesen, Heft 1, S. 91.
FORSTER (K.). — Über die **Strukturunterschiede zwischen DB und S.N.C.F.** (3 000 Wörter & Tafeln.)

Die Bundesbahn. (Darmstadt und Köln.)

1960 **625** .245 (43)
Die Bundesbahn, Nr. 2, Januar, S. 74.
REINBRECHT (H.). — Der **Einsatz grossräumiger Selbstentladewagen (OOt und KKt)** im Massengutverkehr der Deutschen Bundesbahn. (5 000 Wörter & Abb.)

1960 **656** .222 .5
Die Bundesbahn, Nr. 2, Januar, S. 85.
KERN (K.). — **Probleme der internationalen Güterzugfahrplanarbeit.** (4 000 Wörter & Tafeln.)

1960 **385** (09 (43)
Die Bundesbahn, Nr. 3, Februar, S. 115.
GRIMM (F.). — Die **neue Bundesbahndirektion Saarbrücken.** (15 000 Wörter & Abb.)

1960 **656** .222 .3
Die Bundesbahn, Nr. 4, Februar, S. 160.
CHAUSSETTE (G.). — **Vollauslastung und Lasterhöhung der Durchgangsgüterzüge** — eine wichtige Rationalisierungsaufgabe. (3 000 Wörter.)

1960 **657** (44)
Die Bundesbahn, Nr. 4, Februar, S. 172.
KRÖMMELBEIN (G.). — Aufbau und Auswertung der **Kostenrechnung bei der S.N.C.F.** (5 000 Wörter & Tafeln.)

1960 **656** (73)
Die Bundesbahn, Nr. 4, Februar, S. 183.
WENZEL (J.). — Die **Wettbewerbslage der US-Bahnen** unter besonderer Berücksichtigung des Personenverkehrs. (4 000 Wörter & Tafeln.)

Deutsche Eisenbahntechnik. (Berlin.)

1960 **625** .2
Deutsche Eisenbahntechnik, Februar, S. 41.
MÜLLER (H.). — Probleme der **Standardisierung im Schienenfahrzeugbau.** (3 000 Wörter & Abb.)

1960 **625** .28
Deutsche Eisenbahntechnik, Februar, S. 53.
MÜLLER (U.). — Probleme der **Standardisierung bei der Entwicklung moderner Triebfahrzeuge.** (3 500 Wörter & Abb.)

1960 **625** .
Deutsche Eisenbahntechnik, Februar, S. 59.
TACKERT (R.). — **Standardisierung auf dem Gebiet des Wagenbaues.** (3 000 Wörter & Abb.)

1960 **656** .22
Deutsche Eisenbahntechnik, Februar, S. 64.
NINNEMANN (H.) und WERNER (W.). — Auswertung der Lehrschau der **Standardisierung auf dem Gebiet des Sicherungswesens.** (1 600 Wörter & Abb.)

1960 **621** .
Deutsche Eisenbahntechnik, Februar, S. 67.
JANSA (F.). — **Schutz von unterirdischen Kabelleitungen gegen Korrosion** durch Fremdströme. (5 000 Wörter & Abb.)

1960 **656** .211 .
Deutsche Eisenbahntechnik, Februar, S. 77.
PIETSCH (H.). — Neuartige Ausbildung von **Bahnsteigdächern.** (2 500 Wörter & Abb.)

1960 **625** .21
Deutsche Eisenbahntechnik, Februar, S. 84.
Aufschrumpfen der Räder auf die Achswellen. (1 500 Wörter & Abb.)

Der Eisenbahningenieur. (Frankfurt am Main.)

1960 **625** .1
Der Eisenbahningenieur, März, S. 68.
DOLL (A.). — Der **Oberbau** als Aufgabe des Internationalen Eisenbahnverbandes. (3 000 Wörter & Abb.

1960 **625** .151 (492
Der Eisenbahningenieur, März, S. 72.
HAUER (J.M.). — **Weichenheizung** bei den Niederländischen Eisenbahnen. (2 500 Wörter & Abb.)

1960 **625** .142 : **625** .1
Der Eisenbahningenieur, März, S. 75.
DRECHSEL (F.). — **Schwellenloser Oberbau im Tunnel.** (1 200 Wörter & Abb.)

1960 **624**
Der Eisenbahningenieur, März, S. 79.
BRAUN (H.). — **Brückenschwellenerneuerung auf stählernen Eisenbahn - Überbauten.** (2 000 Wörter & Abb.)

1960 **656** .2
Der Eisenbahningenieur, März, S. 83.
SIEMONEIT (E.). — Mehrere **Stromkreise** in einem Kabel. (1 500 Wörter & Abb.)

1960 **621** .133
Der Eisenbahningenieur, März, S. 86.
SMIATEK (L.). — Der Weg zur **Mischvorwärmeranlage** Bauart 1957. (2 500 Wörter & Abb.)

1960 **625** .1
Der Eisenbahningenieur, März, S. 91.
KÖNIG (H.). — Der **Tunnelmesswagen Kar 6210.** (2 000 Wörter & Abb.)

E.T.R.-Eisenbahntechnische Rundschau. (Köln-Darmstadt.)

1960 **625** .245 (43)
Eisenbahntechnische Rundschau, Februar, S. 49.
KÖNIG (H.). — Neuere Bauarten **offener Selbstentladewagen.** (6 000 Wörter & Abb.)

1960 **625** .143 .3
Eisenbahntechnische Rundschau, Februar, S. 62.
DRESSLER (A.). — Zur Ursache der **Riffelbildung** auf den Fahrflächen von Eisenbahnschienen. (1 500 Wörter & Abb.)

1960 **625** .282 (498)
Eisenbahntechnische Rundschau, Februar, S. 64; März, S. 133.
HONDIUS (H.). — **2 100-PS-dieselelektrische Lokomotive** der Baureihe 060-DA für die Rumänischen Staatsbahnen. (8 000 Wörter & Abb.)

1960 **385** .58 (44)
Eisenbahntechnische Rundschau, Februar, S. 75.
STUMPP (T.). — **Arbeitstherapeutische Werkstätten** für Unfallverletzte bei der S.N.C.F. (1 500 Wörter & Abb.)

1960 **625** .232 (43)
Eisenbahntechnische Rundschau, Februar, S. 78.
LEICHER (E.). — Neuere Entwicklung bei dem **Bau von Speisewagen und Schlafwagen** in Deutschland. Teil II: Schlafwagen. (10 000 Wörter & Abb.)

Elektrische Bahnen. (München.)

1960 **621** .335 (43)
Elektrische Bahnen, Heft 3, S. 49.
PFEIFER (J.). — **50 Jahre E 6902 und die Eisenbahn Murnau-Oberammergau.** (3 500 Wörter & Abb.)

1960 **621** .431 .72
Elektrische Bahnen, Heft 3, S. 59.
HONDIUS (H.). — **2100 PS dieselelektrische Lokomotiven der Baureihe 060-DA** für die Rumänischen Staatsbahnen. (7 500 Wörter & Abb.)

Elektrotechnik und Maschinenbau. (Wien.)

1960 **621** .316
Elektrotechnik und Maschinenbau, 15. März, S. 117.
BEN URI (J.). — Die **Frequenzkaskade mit Trockengleichrichtern.** (2 500 Wörter & Abb.)

1960 **621** .314
Elektrotechnik und Maschinenbau, 15. März, S. 123.
HÖLTERS (F.). — **Wechselrichter** (*Schluss aus Heft 5*). (3 800 Wörter & Abb.)

1960 **621** .313
Elektrotechnik und Maschinenbau, 1. April, S. 141.
EDWIN (K.W.) und ZWICKNACH (W.H.). — **Alterungsmessungen an Hochspannungswicklungen von Synchronmaschinen.** (5 000 Wörter & Abb.)

1960 **621** .316
Elektrotechnik und Maschinenbau, 1. April, S. 149; 15. April, S. 170.
LOH (O.). — **Kraft-, Weg- und Geschwindigkeitsmessungen** an einem Schütz. (4 500 Wörter & Abb.)

E.T.Z. Elektrotechnische Zeitschrift. (Berlin.)

1960 **621** .31
E.T.Z., 21. März, S. 128.
HERHAHN (A.). — **Fortschritte auf dem Gebiet der Installationstechnik.** (1 800 Wörter & Abb.)

1960 **621** .31
E.T.Z., 4. April, S. 145.
AIGNER (V.). — **Senkung, Abfuhr und Verwertung der Transformatoren-Verlustwärme.** (6 500 Wörter & Abb.)

1960 **621** .31
E.T.Z., 4. April, S. 154.
KOCH (W.). — **Erdungsfragen.** (2 800 Wörter & Abb.)

Glasers Annalen. (Berlin.)

1960 **385** (061 .1
Glasers Annalen, Februar, S. 43.
WIENS (G.). — **Internationaler Eisenbahnkongress in Neu-Delhi.** (6 000 Wörter, Tafeln & Karte.)

1960 **656** .25 (469)
Glasers Annalen, Februar, S. 52.
AHLGRIMM (H.) und JUBERT (L.). — Die **Signalanlagen der mit Einphasen-Wechselstrom 50 Hz, 25 kV elektrifizierten Strecken** der Companhia dos Caminhos de Ferro Portugueses. (3 000 Wörter & Abb.)

1960 **625** .232
Glasers Annalen, Februar, S. 59 und März, S. 82.
KERNCHEN (G.). — **Neue Reisezug- und Schlafwagen und deren Lärmbekämpfung.** (7 000 Wörter & Abb.)

1960 **385** .113 (43)
Glasers Annalen, Februar, S. 66.
Vorläufiger Jahresrückblick der Deutschen Bundesbahn für das Geschäftsjahr 1959. (1 500 Wörter & Tabellen.)

Henschel-Nachrichten. (Kassel.)

1960 **625** .282 (62)
Henschel-Nachrichten, Nr. 1, April, S. 18.
ULLMANN (E.). — **Henschel-GM-Diesel-elektrische Lokomotive Typ AA 16 1950 PS** der Ägyptischen Eisenbahnen. (800 Wörter & Abb.)

1960 **625** .282 (43)
Henschel-Nachrichten, Nr. 1, April, S. 20.
Diesel-hydraulische Henschel-Lokomotive Typ DH 850. (1 200 Wörter & Abb.)

Leichtbau der Verkehrsfahrzeuge. (Frankfurt/Main).

1960 **625** .2 (73)
Leichtbau der Verkehrsfahrzeuge, März-April, S. 54.
TASCHINGER (O.). — Der **Leichtbau der Schienenfahrzeuge in den U.S.A.** (*Schluss folgt.*) (16 000 Wörter, Tabellen & Abb.)

1960 **625** .2 (82)
Leichtbau der Verkehrsfahrzeuge, März-April, S. 82.
SCHWANER (H.J.). — **Stand und Aussichten des Leichtbaues** bei den Argentinischen Staatsbahnen. (2 000 Wörter & Karte.)

Schweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik. (Zürich.)

1960 **656** (4)
Schweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, Nr. 1, S. 17.
HEECKT (H.). — **Verkehrspolitische Grundsatzfragen der Europäischen Wirtschaftsgemeinschaft.** (5 000 Wörter).

1960 **656**
Schweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, Nr. 1, S. 35.
WHITWORTH (C.E.). — **Some impacts of air and road transport on railway economics and practices.** (7 000 Wörter.)

Siemens-Zeitschrift. (Berlin.)

1960 **621** .318
Siemens-Zeitschrift, Februar, S. 90.
CAMPCZYK (W.). — Einige Eigenschaften und **Anwendungen hochpermeabler Ferrite.** (3 200 Wörter & Abb.)

1960 **621** .396
Siemens-Zeitschrift, Februar, S. 104.
ARENDS (M.) und MEHR (A.). — Ein **Mehrfach-Trägerfrequenz-Fernsprechersystem - V 4/12 - für vielseitigen Einsatz.** (2 800 Wörter & Abb.)

1960 **621** .395
Siemens-Zeitschrift, März, S. 113.
OBERARZBACHER (M.). — Überblick über die Technik der **Bahn-Selbstanschlussanlagen** (BASA). (4 000 Wörter & Abb.)

1960 **621** .31
Siemens-Zeitschrift, März, S. 121.
FEYERTAG (H.). — **Gleichrichtertransformatoren** grosser Leistung. (5 500 Wörter & Abb.)

1960 **621** .31
Siemens-Zeitschrift, März, S. 133.
Schleifringläufermotoren mit unsymmetrischen Aussenwiderständen im Läuferkreis. (7 500 Wörter & Abb.)

Signal und Draht. (Frankfurt/Main.)

1960 **625** .25
Signal und Draht, März, S. 41, 49 und 57.
DELPY (A.). — **Bedeutung und Aufgaben der elektronischen Gleisbremsensteuerung.** (4 000 Wörter & Abb.
LANG (M.) und REMPKA (J.). — Aufbau der **elektronischen Gleisbremsensteuerung Bauform Siemens & Halske AG.** (4 000 Wörter & Abb.)
DINTER (K.) und WENTZEL (P.). — Aufbau der **elektronischen Gleisbremsensteuerung Bauform Telefunken.** (5 000 Wörter & Abb.)

Verkehr (Wien.)

1960 **656** (439
Verkehr, 23. April, S. 545.
HEGEDÜS (J.). — **Verkehrskoordination** in Ungarn (1 000 Wörter.)

In English.

Bulletin, American Railway Engineering Association. (Chicago.)

1960 **621** .392 (73) & **625** .144 .1 (73
Bulletin, American Railway Engineering Association Vol. 61, No. 556, February, p. 897.
Report of Special Committee on continuous welded rail. (33 pages, illustrated.)

Electric Traction on the Railways. (Brussels.)

1960 **621** .335 (43
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways No. 3, March, p. 105.
BAUERMEISTER (K.). — Recent research on air intake louvres and air filters of **electric locomotives** (6 000 words & figs.)

1960 **621** .33
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways No. 3, March, p. 132.
SEIFERT (G.). — Transient phenomena in the **traction motor circuit of D.C. locomotives.** (4 000 words & figs.)

1960 **621 .332 (44)**
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 3, March, p. 144.
MAUPOME and GUILLERAULT. — Equipment of the « bi-current » station of Dole. (3 200 words & figs.)

The Engineer. (London.)

1959 **621 .33**
The Engineer, Dec. 18, p. 813.
Characteristics and protection of semiconductor rectifiers. (2 000 words & figs.)

1960 **621 .431 .72**
The Engineer, Jan. 29, p. 182.
TUPLIN (W.A.). — **Surface stresses in spur and helical gears.** (3 600 words & figs.)

1960 **621 .431 .72**
The Engineer, Jan. 29, p. 186.
WILLIAMS (T.J.). — **Some applications of « Deuce » to Diesel engine design.** (2 200 words & figs.)

East African Railways and Harbours Magazine. (Nairobi.)

1960 **385 .58**
East African Railways and Harbours Magazine, February, p. 193.
Work study. (600 words.)

Indian Railways. (New Delhi.)

1960 **625 .13 (54)**
Indian Railways, February, p. 975.
Brahmaputra bridge spells Assam's prosperity. (600 words & figs.)

1960 **656 .2 (54)**
Indian Railways, February, p. 979.
KARNAIL SINCH. — **Unending quest for technology.** (1 200 words & figs.)

Journal, The Institution of Locomotive Engineers. (London.)

1960 **621 .335**
Journal, The Institution of Locomotive Engineers, Vol. 49 (Part 4), No. 270, p. 396.
GREEN (T.E.) and GESSLER (J.K.). — **The electro-gyro locomotive.** (61 pages, illustrated.)

1960 **625 .213**
Journal, The Institution of Locomotive Engineers, Vol. 49 (Part 4), No. 270, p. 457.
HANCOCK (R.M.). — **Vehicle suspension and bogie design in relation to track conditions.** (107 pages, illustrated.)

The Journal of the Institute of Transport. (London.)

1960 **656 .222 .5**
The Journal of the Institute of Transport, March, p. 269.
WHITE (P.A.) and NEAL (A.F.). — **The problem of the peak.** (3 600 words & figs.)

1960 **656 .23 (42)**
The Journal of the Institute of Transport, March, p. 284.
CARR (J.L.). — **The case for discriminatory rail charges.** (3 600 words.)

Mechanical Engineering. (New York.)

1960 **625 .28**
Mechanical Engineering, February, p. 66.
Progress in railway mechanical engineering. (2 500 words & figs.)

Modern Railroads. (Chicago.)

1960 **625 .172 (73)**
Modern Railroads, March, p. 77.
SHEDD (T.), Jr. — **M/W men tackle challenging problems as they strive to do still better work with less money.** (3 000 words.)

1960 **656 .225 (73)**
Modern Railroads, April, p. 57.
FORD (NANCY). — **« Boom » is the word for piggyback.** (2 500 words & figs.)

1960 **656 .225 (73)**
Modern Railroads, April, p. 64.
FORD (NANCY). — **Which plan brings more net ?** (1 500 words & figs.)

1960 **625 .13 (73)**
Modern Railroads, April, p. 69.
Bridge sprayer cuts costs for C.N.J. (800 words & figs.)

Modern Transport. (London.)

1960 **656**
Modern Transport, January 30, p. 3.
Sir Brian ROBERTSON. — **I. Co-ordination of transport.** (2 600 words.)

1960 **625 .2 (42)**
Modern Transport, January 30, p. 5.
New trains for London Transport, by Metropolitan-Cammell. (2 400 words & figs.)

1960 **656 .2 (42)**
Modern Transport, February 6, p. 5.
Sir Brian ROBERTSON. — **II. Co-ordination of transport.** (2 000 words.)

1960 **656** .2 (42)
Modern Transport, February 6, p. 13.
Sir John BENSTEAD. — **The changing scene. Transport since 1947.** (1 600 words.)

1960 **656** (42)
Modern Transport, February 13, p. 3.
Roadrailer experiments. (2 000 words & figs.)

1960 **656** .212 (42)
Modern Transport, February 20, p. 5.
New Tees-Side freight depot. (1 000 words & figs.)

1960 **656** .212 (42)
Modern Transport, February 20, p. 6.
Remodelling and reconstruction of railway facilities at Peterborough. (800 words & figs.)

Permanent Way. (Tokyo.)

1959 **625** .17 (52)
Permanent Way, No. 3, Nov., p. 1.
MOTOSHI HIDA. — **The work intensity and the rationalization of track maintenance operations.** (3 600 words, tables & figs.)

Railway Age. (New York.)

1960 **621** .131 .1 (73)
Railway Age, January 4, p. 17.
Let's use available adhesion. (1 000 words & figs.)

1960 **625** .172 (73)
Railway Age, January 4, p. 18.
B & O has new method for ripping out surplus track. (600 words & figs.)

1960 **656** .225
Railway Age, January 4, p. 23.
WRIGHT (W.B.). — **How cars in multiple cut costs.** (800 words & figs.)

1960 **656** .2 (73)
Railway Age, January 18, p. 31.
MONROE (E.J.). — **1959 review of railway operations.** (18 000 words & figs.)

1960 **625** .244 (73)
Railway Age, February 8, p. 14.
Mechanical reefers get traffic. (3 400 words & figs.)

1960 **625** .244 (73)
Railway Age, February 22, p. 12.
What makes a mechanical reefer tick ? (1 900 words & figs.)

The Railway Gazette. (London.)

1960 **625** .151 (42)
The Railway Gazette, February 12, p. 186.
High speed junctions and crossovers in the Southern Region. (600 words & figs.)

1960 **656** .211 .7 (4)
The Railway Gazette, February 12, p. 188.
CLAYDON (B.S.). — **The Harwich-Zeebrugge train ferry.** (1 900 words & figs.)

1960 **621** .33 (54)
The Railway Gazette, February 12, p. 193.
WARDER (S.B.). — **Electrification on Indian Railways.** (1 400 words & figs.)

1960 **621** .33 (44)
The Railway Gazette, February 12, p. 195.
Further stages on Paris-Nord electrification, S.N.C.F. (1 000 words & figs.)

1960 **625** .13 (42)
The Railway Gazette, February 19, p. 219.
New Fairfield Street bridge, Manchester. (900 words & figs.)

1960 **621** .431 .72 (42)
The Railway Gazette, February 19, p. 221.
British Railways type « 3 » Diesel-electric locomotive. (1 200 words & figs.)

1960 **625** .215
The Railway Gazette, February 26, p. 245.
KOFFMAN (J.L.). — **Lateral oscillations of bogie bolsters.** (4 000 words & figs.)

Diesel Railway Traction. (London.)

1960 **621** .431 .72 (42)
Diesel Railway Traction, March, p. 87.
Bogie-type mixed-traffic locomotives, B.R. (2 500 words & figs.)

1960 **621** .431 .72
Diesel Railway Traction, March, p. 92.
Large quick-running engine. (1 600 words & figs.)

1960 **621** .431 .72 (492)
Diesel Railway Traction, March, p. 95.
Diesel traction in Holland. (2 800 words & figs.)

1960 **621** .431 .72 (6)
Diesel Railway Traction, March, p. 99.
Line-service locomotives for Ghana. (3 000 words & figs.)

Railway Locomotives and Cars. (New York.)

1959 **625** .214 (73)
Railway Locomotives and Cars, December, p. 34.
How Pennsy reclaims lubricators. (700 words & figs.)

1959 **621** .33 (73)
Railway Locomotives and Cars, December, p. 46.
APPLEBY (E.C.). — **Production and maintenance simplified... using glassbands for traction motors.** (1 800 words & figs.)

1960 **625 .212 (73)**
Railway Locomotives and Cars, January, p. 31.
Mobile units check car axles. (900 words & figs.)

Railway Signaling and Communications, (New York.)

1960 **651 & 656 .22**
Railway Signaling and Communications, March, p. 13.
O'NEILL (J.). — **Computer analyses train operation.** (3 400 words & figs.)

1960 **625 .14**
Railway Signaling and Communications, April, p. 15.
Long distance hot box detection. (1 000 words & figs.)

1960 **656 .25 (73)**
Railway Signaling and Communications, April, p. 18.
WHEELER (J.L.). — **High speed data transmission.** (3 000 words & figs.)

Railway Track and Structures. (Chicago.)

1959 **625 .164 (73)**
Railway Track and Structures, December, p. 19.
SOO line fights snow with long-range cut-widening program. (1 600 words & figs.)

1959 **625 .13 (73)**
Railway Track and Structures, December, p. 26.
Test end posts to failure in model span. (600 words & figs.)

1960 **625 .13 (73)**
Railway Track and Structures, April, p. 29.
... New bridge was built around old one. (1 000 words & figs.)

1960 **625 .142 .4 (73)**
Railway Track and Structures, April, p. 32.
Concrete-tie test sections go in on ACL, SAL. (1 200 words & figs.)

Trains Illustrated. (London.)

1960 **656 .222**
Trains Illustrated, April, p. 205.
FIENNES (G.F.). — **Unpunctuality — the cause and the cure.** (1 200 words & figs.)

1960 **621 .131 (42)**
Trains Illustrated, April, p. 215.
WEEDEN (G.A.). — **Engine driving — is it an art or a science ?** (1 200 words & figs.)

In Spanish.

Boletin de la Comisión Permanente de la Asociación del Congreso Panamericano de Ferrocarriles. (Buenos Aires.)

1959 **656 .2 (82)**
Bol. de la Com. Perman. de la Asociación del Congreso Panameric. de Ferrocarriles, septiembre-diciembre, p. 53.
FONTANELLA (J.A.). — **Clausura y/o levantamiento de lineas ferroviarias.** (Argentina). (1 000 palabras.)

1959 **656 .212 .5**
Bol. de la Com. Perman. de la Asociación del Congreso Panameric. de Ferrocarriles, septiembre-diciembre, p. 58.
SCHENONE (H.J.). — **La electronica en las playas automaticas de clasificación de vagones.** (4 000 palabras.)

Ferrocarriles y Tranvias. (Madrid.)

1960 **625 .26 (460)**
Ferrocarriles y Tranvias, vol. 25-XII, nº 292, p. 405.
GUERRERO (A.G.). — Algo sobre **racionalización del trabajo en los talleres de Material y Tracción** de la R.E.N.F.E. (2 000 palabras & fig.)

1960 **625 .172**
Ferrocarriles y Tranvias, vol. 25-XII, nº 292, p. 410.
DELIUS (P.). — **Nuevo coche de reconocimiento de vías.** (800 palabras & fig.)

Revista de Obras Publicas. (Madrid.)

1960 **69**
Revista de Obras Publicas, marzo, p. 158.
ANGULO Y PROTA (L.). — Comentarios sobre la plasticidad en el **calculo de estructuras.** (2 500 palabras & fig.)

Transportes. (Madrid.)

1960 **625 .42 (469)**
Transportes, enero-marzo, p. 6.
BLAZQUEZ (M.). — El **Metropolitano de Lisboa.** (1 200 palabras & fig.)

In Italian.

Ingegneria Ferroviaria. (Roma.)

1960 **621 .431 .72**
Ingegneria Ferroviaria, gennaio, p. 5.
BIANCHEDI (R.). — Le **trasmissioni agli assi** nelle locomotive Diesel-idrauliche. (2 500 parole & fig.)

1960 **656** .222 .5
Ingegneria Ferroviaria, gennaio, p. 11.
CIRILLO (M.). — Un problema che richiede urgente soluzione, in particolare sotto l'aspetto della **disciplina dei trasporti : lo scaglionamento delle vacanze.** (8 000 parole.)

1960 **621** .331 (45)
Ingegneria Ferroviaria, gennaio, p. 23.
PROSPERI (L.). — L'**impianto di telecomando della sottostazione elettrica** di conversione di Agropoli. (5 000 parole & fig.)

1960 **621** .3
Ingegneria Ferroviaria, febbraio, p. 97.
RIGHI (R.). — **Logica e tecnica.** (4 000 parole & fig.)

1960 **621** .335 (45)
Ingegneria Ferroviaria, febbraio, p. 105.
ZATTONI (T.) & MAFFEI (G.). — Le **locomotive elettriche di manovra a 3 000 V c.c. Gr. 321** per la rete elettrificata delle F.S. (3 000 parole & fig.)

1960 **621** .33 (45)
Ingegneria Ferroviaria, febbraio, p. 111.
PASCUCCI (L.). — L'**elettrificazione** della linea Messina-Catania. (3 000 parole & fig.)

1960 **625** .1 (45)
Ingegneria Ferroviaria, febbraio, p. 139.
DEVOTO (G.). — Un aspetto dell' **ammodernamento ferroviario.** (1 200 parole & fig.)

Politica dei Trasporti. (Roma.)

1960 **625** .244 (45)
Politica dei Trasporti, marzo, p. 121.
FAZIO (G.). — **La produzione ortofrutticola e i trasporti ferroviari.** (2 000 parole, tavole & fig.)

Rivista di Ingegneria. (Milano.)

1960 **62** (01
Rivista di Ingegneria, marzo, p. 247.
CAIRONI (M.). — Su una interpretazione dell' algoritmo di Cholesky nella **statica dei sistemi elastici.** (1 600 parole, tabelle & fig.)

1960 **62** (01
Rivista di Ingegneria, marzo, p. 257.
PANSERI (C.) & ROBBA (M.). — La **individuazione ultrasonoscopica di rotture e lesione negli alberi a gomito** e le precauzioni necessarie per l'ottenimento di un responso significativo. (600 parole & fig.)

Trasporti Pubblici. (Roma.)

1960 **385** (09 (45)
Trasporti Pubblici, gennaio, p. 19.
DE LUCA (A.). — L'**ammodernamento** delle Ferrovie del Sud-Est. (2 000 parole & fig.)

1960 **656** .224
Trasporti Pubblici, gennaio, p. 39.
MINONI (E.). — Orientamenti sul **sistema fiduciario di distribuzione dei biglietti** ai bigliettari. (4 000 parole & fig.)

1960 **385** (09 (45)
Trasporti Pubblici, gennaio, p. 69.
FRACASSI (A.). — La **Ferrovia Sangritana.** (1 500 parole & fig.)

In Netherlands.

De Ingenieur. (Den Haag.)

1960 **625** .42 (492)
De Ingenieur, nr 12, 18 maart, p. A. 149; nr 13, 25 maart, p. A. 169.
BROUWER (Th.). — Het **Metroplan Rotterdam.** II. De relatie openbaar en particulier vervoer. Vervoersstromen. III. Metro-exploitatie. (6 500 woorden & fig.)

1960 **624** .2
De Ingenieur, nr 13, 25 maart, p. Bt. 38.
De **invloed van de doorsnede-draaiing van op wringing belaste balken op de momenten-verdeling** in daarop aansluitende platen. (1 200 woorden & fig.)

1960 **625** .213
De Ingenieur, nr 14, 1 april, p. W. 85.
KEIZER (C.P.). — Demping van **luchtveren.** (4 000 woorden & fig.)

Spoor- en Tramwegen. (Den Haag.)

1960 **656** .212 .5 (492)
Spoor- en Tramwegen, nr 3, 11 februari, p. 39.
VAN DER SAR (F.). — **Rangeerdienstleiding** te Rotterdam Zuid Goederenstation. (5 000 woorden & fig.)

1960 **621** .331 (493)
Spoor- en Tramwegen, nr 3, 11 februari, p. 45.
DE SUTTER (H.). — De **onderstations voor elektrische traktie 3 000 V gelijkstroom** bij de Nationale Maatschappij der Belgische Spoorwegen (N.M.B.S.). (1 200 woorden & fig.)

1960 **385** (09 (944)
Spoor- en Tramwegen, nr 3, 11 februari, p. 47; nr 4, 25 februari, p. 62.
VAN BIJNEN (J.). — De **spoorwegen van Australië.** Railways of New South Wales. (2 000 woorden & fig.)

1960 **621** .436
Spoor- en Tramwegen, nr 4, 25 februari, p. 53.
VAN OMME (N.). — **Vermogensverandering van dieselmotoren** onder invloed van veranderlijke atmosferische omstandigheden. (3 000 woorden & fig.)

1960 **625** .1 (493)
Spoor- en Tramwegen, nr 4, 25 februari, p. 57.
JACOPS (A.). — **Antwerpen-Dam.** (1 000 woorden & fig.)

1960 **621** .32
Spoor- en Tramwegen, nr 4, 25 februari, p. 64.
Voeding van fluorescentielampen. Gelijkstroom-wisselstroomomzetter met transistors. (1 000 woorden & fig.)

1960 **656** .225
Spoor- en Tramwegen, nr 5, 10 maart, p. 69.
PENTINGA (K.J.). — Het **verpakken van lichtbreekbare goederen.** (1 200 woorden & fig.)

1960 **385** (09 (94)
Spoor- en Tramwegen, nr 5, 10 maart, p. 71; nr 6, 24 maart, p. 89.
VAN BIJNEN (J.). — De **spoorwegen van Australië.** Victoria. I en II. (1 000 woorden & fig.)

1960 **656** .2 (4)
Spoor- en Tramwegen, nr 5, 10 maaart, p. 74.
WEEMAELS (F.). — Een balans... De Raad van Europa, de **Europese integratie en de spoorweg.** (3 000 woorden.)

1960 **625** .24 (43)
Spoor- en Tramwegen, nr 5, 10 maart, p. 77.
Modernisering van het wagenpark van de Deutsche Bundesbahn. (500 woorden & fig.)

In Polish (= 491.85).

Przeglad Kolejowy Elektryczny. (Varsovie.)

1959 **621** .33 = 491 .85
Przeglad Kolejowy Elektryczny, janvier, p. 1.
La **perspective la plus prochaine de l'électrification des chemins de fer.** (750 mots.)

1959 **656** .257 = 491 .85
Przeglad Kolejowy Elektryczny, janvier et numéros suivants, p. 3.
MICKIEWICZ (T.). — Les **moteurs d'aiguillage électriques, type PB.** (11 000 mots & fig.)

1959 **656** .25 = 491 .85
Przeglad Kolejowy Elektryczny, janvier, p. 14.
KARAS (S.). — Tableaux de commande dans les **installations de sécurité « tout relais »**, pour le mouvement des trains. (2 000 mots & fig.)

1959 **621** .335 = 491 .85
Przeglad Kolejowy Elektryczny, janvier, p. 21.
PAZDRO (P.). — **Relais de démarrage électrique, employés dans le matériel roulant électrique.** (1 500 mots & fig.)

1959 **385** (07 (438) = 491 .85
Przeglad Kolejowy Elektryczny, janvier, p. 25.
SMIGIELSKI (H.). — Les **études à l'Ecole Supérieure Technique à Varsovie dans le domaine de la sécurité du mouvement des trains.** (1 500 mots.)

1959 **621** .335 (438) = 491 .85
Przeglad Kolejowy Elektryczny, février, p. 33.
SKONIECKI (J.). — La première unité électrique à trois wagons des P.K.P., construite dans le pays. (1 900 mots & fig.)

1959 **656** .257 = 491 .85
Przeglad Kolejowy Elektryczny, février, p. 36.
KRYSZCZYNSKI (T.). — Une **nouvelle méthode d'enregistrement de l'enclenchement.** (2 200 mots & fig.)

1959 **656** .254 (438) = 491 .85
Przeglad Kolejowy Elektryczny, février, p. 40.
GODWOD (J.). — Perspectives de **l'évolution des télécommunications** aux P.K.P. (Chemins de fer d'Etat polonais). (2 600 mots.)

1959 **656** .254 = 491 .85
Przeglad Kolejowy Elektryczny, février, p. 47.
ZACHARSKI (S.). — Les **appareils radiotéléphoniques à ondes ultra-courtes, type FM.** (2 000 mots.)

1959 **656** .256 .3 (438) = 491 .85
Przeglad Kolejowy Elektryczny, février, p. 59.
GARDYJAS (Z.). — Le **block automatique** dans le réseau des trains de banlieue de Varsovie. (1 500 mots & fig.)

1959 **656** .25 = 491 .85
Przeglad Kolejowy Elektryczny, mars, p. 82.
LIPINSKI (K.). — **Prise de terre dans les installations ferroviaires de sécurité et de télécommunications.** (2 500 mots & fig.)

1959 **656** .212 .5 = 491 .85
Przeglad Kolejowy Elektryczny, mars, p. 87.
KARAS (S.). — Les **principes généraux de sécurité du mouvement des trains dans les gares de triage.** (1 100 mots & fig.)

Przeglad Kolejowy Przewozowy. (Varsovie.)

1959 **656** .2 (438) = 491 .85
Przeglad Kolejowy Przewozowy, janvier, p. 1.
WEGNER (H.). — L'**exécution du transport** aux P.K.P. (Chemins de fer d'Etat polonais) en 1958-1959. (5 200 mots.)

1959 **656** .225 (438) = 491 .85
Przeglad Kolejowy Przewozowy, janvier, p. 9.
OMELYANIOUK (S.) et PIECUCH (J.). — Le **développement de la « containerisation »** aux P.K.P. (2 800 mots & fig.)

1959 **656** .223 .2 = 491 .85
Przeglad Kolejowy Przewozowy, janvier, p. 17.
GOLIK (M.). — Le **contrôle de la rotation des wagons-tombereaux** dans les bassins houillers. (1 200 mots.)

1959 **656** .211 .5 = 491 .85
Przeglad Kolejowy Przewozowy, février, p. 31.
BRYGIEWICZ (E.). — La **disposition générale des gares.** (2 200 mots.)

1959 **385** (07 (438) = 491 .85
Przeglad Kolejowy Przewozowy, février, p. 38.
PALUCKI (W.). — **Utilité des écoles techniques ferroviaires** pour le travail professionnel aux P.K.P. (1 400 mots.)

1959 **656** .2 = 491 .85
Przeglad Kolejowy Przewozowy, février, p. 42.
DOWIATT (W.). — **L'avenir des chemins de fer.** (2 600 mots & fig.)

1959 **385** .581 = 491 .85
Przeglad Kolejowy Przewozowy, mars, p. 61.
KARWOWSKI (S.). — Le **temps de travail du dispatcher** doit-il durer 12 ou 24 heures ? (1 200 mots.)

1959 **656** = 491 .85
Przeglad Kolejowy Przewozowy, mars, p. 68.
NAYDA (A.). — Recherches sur la **rationalisation du service de transport.** (1 500 mots.)

1959 **656** .211 .5 = 491 .85
Przeglad Kolejowy Przewozowy, mars, p. 73.
KOKOL (Z.). — Le problème de la **fourniture de renseignements aux voyageurs.** (1 400 mots.)

In Portuguese.

Gazeta dos Caminhos de ferro. (Lisboa.)

1960 **625** .23 (44)
Gazeta dos Caminhos de ferro, nº 1734, 16 de Março, p. 10.
BOUILLOUD (Ph.). — A **carruagem pendular** e as grandes velocidades. (1 500 palavras.)

In Russian (= 491.7).

Avtomatica, Telemechanika i Svias. (Moscou.)

1959 **656** .254 (47) = 491 .7
Avtomatica, Telemechanika i Svias, janvier, p. 1.
Le **plan septennal du développement de l'automatisation, de la télémécanique et des télécommunications en U.R.S.S.** (2 000 mots & fig.)

1959 **656** .257 = 491 .7
Avtomatica, Telemechanika i Svias, janvier, p. 10.
OKOVANTSEV (L.A.) et PYETROV (A.F.). — **Le nouveau type de commande centralisée.** (1 500 mots & fig.)

1959 **656** .257 = 491 .7
Avtomatica, Telemechanika i Svias, janvier, p. 35.
SINYELNIKOVA (V.P.) et TSETSOURA (I.A.). — La pratique de la mise en exploitation des **postes enclenchés « tout relais » à boutons de commande d'itinéraires.** (1 700 mots & fig.)

1959 **621** .35 = 491 .7
Avtomatica, Telemechanika i Svias, février, p. 22.
KOUSOBLEV (B.A.). — Le graphique d'exploitation des **batteries d'accumulateurs.** (1 200 mots.)

1959 **656** .254 = 491 .7
Avtomatica, Telemechanika i Svias, février, p. 29.
GUELTSEL (M.Y.). — La **télégraphie à fréquence acoustique** dans le système de contrôle ME-8. (1 100 mots & fig.)

1959 **621** .3 = 491 .7
Avtomatica, Telemechanika i Svias, février, p. 34.
GRIGORYEV (Y. V.) et BERDITCHEVSKY (TS. O.). — **Dispositif de localisation des dégâts de câbles.** (1 200 mots & fig.)

1959 **621** .33 = 491 .7
Avtomatica, Telemechanika i Svias, mars, p. 11.
SNARSKY (A.A.). — **Influence du réseau de traction électrique sur les lignes de télécommunications et de signalisation.** (3 000 mots & fig.)

1959 **656** .256 .2 = 491 .7
Avtomatica, Telemechanika i Svias, mars, p. 17.
FYEDOTYEV (P.V.) et NARKYEVITCH (A.K.). — Le nouveau système de **block semi-automatique.** (2 000 mots & fig.)

1959 **621** .3 = 491 .7
Avtomatica, Telemechanika i Svias, mars, p. 33.
PANINE (P.S.). — **Localisation de dégâts dans les câbles** à grande section. (1 000 mots & fig.)

Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Instituta Jelezno-Doroznowo Transporta. (Moscou.)

1959 **656** .2 (47) = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Instituta Jelezno-Doroznowo Transporta, nº 1, p.3.
MOULOUKINE (F.P.). — Le plan septennal de la **reconstruction technique du transport ferroviaire en U.R.S.S.** (3 100 mots.)

1959 **656** .25 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Instituta Jelezno-Doroznowo Transporta, nº 1, p. 8.
RYASANTSEV (B.S.). — Les **matières synthétiques employées dans la signalisation et les télécommunications.** (1 100 mots.)

1959 **656** .254 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Instituta Jelezno-Doroznowo Transporta, nº 1, p. 10.
LEBYEDYEVA (T.P.) et OUMANSKY (G.M.). — La **télévision dans les gares ferroviaires.** (2 900 mots & fig.).

1959 625 .282 = 491 .7
iestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 15.
POPOV (G.V.) et YEREMYEV (A.S.). — **La nouelle locomotive Diesel TGM1** à transmission hydrauque. (1 800 mots & fig.)

1959 625 .282 = 491 .7
iestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 19.
NYEMOUKHINE (V.P.) et KOSIRYEV (Y.M.). — **a locomotive Diesel TO3 à voie étroite.** (2 200 mots fig.)

1959 621 .431 .72 = 491 .7
iestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 24.
ASSTACHKYEVITCH (B.M.). — Les méthodes our augmenter la résistance à l'**usure des cylindres es moteurs Diesel de locomotives.** (2 000 mots & fig.)

1959 621 .431 .72 = 491 .7
iestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 28.
SKVORTSOV (A.A.). — De la porosité des **isolants es moteurs de traction.** (1 400 mots & fig.)

1959 625 .251 = 491 .7
iestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 30.
LARINE (T.V.), DEVYATKINE (V.P.), TARASENKO (A.Y.) et VOUCOLOV (L.A.). — **Fonte pour abots de frein.** (2 100 mots & fig.).

1959 625 .212 = 491 .7
iestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 35.
KRAITCHOUK (M.M.), YEMYELYANOV (N.P.) MAXIMOV (V.N.). — **Les procédés tendant à diminuer les tensions intérieures dans les bandages** après oudure dans les ateliers locaux. (1 500 mots & fig.)

1959 625 .143 .3 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 38.
OUSKOVA (O.N.). — **Dégâts de contact sur les rails dans les courbes** et moyens de lutte employés. (1 400 mots.)

1959 669 .1 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 41.
ATCHKASSOV (L.G.) et CHTCHAPOV (N.P.). — Influence de la température, du temps et des tensions internes sur le caractère de la **corrosion de l'acier peu carburé.** (2 100 mots & fig.)

1959 656 .254 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 1, p. 44.
TCHEBOTARYEV (Y.P.). — Sur les méthodes de réglage des niveaux de transmission sur les **circuits de commande centralisée.** (1 000 mots & fig.)

In Swedish (= 439.71).

Järnvägsteknik. (Stockholm.)

1960 625 .1 (47) = 439 .71 & 625 .17 (47) = 439 .71
Järnvägsteknik, n° 2, p. 25.
GUDMUNDSSON (N.). — **Construction et entretien de la voie** en U.R.S.S. (2 000 mots & fig.)

1960 656 .212 .5 (4) = 439 .71
Järnvägsteknik, n° 2, p. 29.
EKLUND (P.) et EMILSSON (S.). — **Technique actuelle des gares de triage** en Europe Occidentale. I. Grande-Bretagne. (3 000 mots & fig.).

M. Weissenbruch & Co., Ltd., Printer to the King, 49, rue du Poinçon, Bruxelles.

MONTHLY BIBLIOGRAPHY OF RAILWAYS[1]

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[016 .385 (02]

I. — BOOKS.

In French.

1960 **385** (09 (44)

Activité et Productivité de la S.N.C.F. en 1959.

Paris, édité par la Société Nationale des Chemins de r Français. Une brochure (21 × 27 cm) de 32 pages, ec graphiques et tableaux.

1960 **694**

ROCHARD (F.-X.).

Bois et charpentes en bois. Le matériau et son utilisation.

Paris, Eyrolles, éditeur, 61, boulevard Saint-Germain. n volume de 250 pages (16 × 25 cm) avec de nombreux bleaux et figures et 16 planches. (Prix : 37 N.F.)

1960 **385** (08 (493)

OCIÉTÉ NATIONALE DES CHEMINS DE FER VICINAUX.

Rapports présentés par le Conseil d'Administration et r le Comité de Surveillance. Soixante-quinzième exer- ce social (1959).

Bruxelles, Imprimerie Graphica, 54, rue Auguste ambiotte. Une brochure (22.5 × 30.5 cm) de 110 pages, ec de nombreux tableaux et illustrations.

1960 **385** .587

PILMAN (M.).

Application pratique de la Recherche opérationnelle à exploitation des entreprises.

Paris (5e), Eyrolles, éditeur, 61, boulevard Saint-ermain. Un volume (16 × 25 cm) de 216 pages, avec figures (Prix : 22 N.F.)

In German.

1960 **691**

ERBERG (W.).

annbetonbau. *I. Teil.* 2. *Ausgabe.*

Leipzig, R.G. Teubner Verlagsgesellschaft. 1 Band 5 × 23 cm) von 342 Seiten, mit 270 Abbildungen und Tafeln. (Preis : DM 21.80.)

1960 **691**

Ing. Rudolf KOPEC.

Leitfaden der Oberflächenbehandlung. *Allgemeine Verfahrenstechnik.* — Übersetzung aus dem Tschechischen.

Berlin, VEB Verlag Technik. 320 Seiten (14.8 × 21 cm) mit 162 Abbildungen und 20 Tafeln. (Preis: Kunstleder, DM 25.—.)

1960 **656** .226

Dr. Walter MEYERCORDT.

Behälter und Paletten. Handbuch zur inner- und ausserbetrieblichen Transportrationalisierung.

Darmstadt, Carl Röhrig Verlag. 380 Seiten, Format DIN A5, 416 Bilder. (Preis : Ganzleinen, DM 28.—.)

1960 **62** (02

Dipl.-Ing. F. POHL and Dipl.-Ing. R. REINDL.

Klingelnberg, Technisches Hilfsbuch. 14. *neubearbeitete Auflage.*

Berlin, Göttingen, Heidelberg, Springer-Verlag. Ein Band (12 × 18 cm), XVI-878 Seiten. (Preis : Ganzleinen, DM 21.—.)

In English.

1960 **625** .234

CARRIER (W.H.) and others.

Modern air conditioning, heating and ventilating. 3rd edition.

One volume (11 × 7 1/4 in.) of 592 pages. New York and London : Pitman. (Price : £ 4.)

1960 **385** (09 (42)

CARTER (E.F.).

An historical geography of the railways of the British Isles.

One volume (10 × 6 3/4 in.) of 637 pages. London : Cassell & Co. Ltd., 35, Red Lion Square, W.C.1. (Price : 63 s.)

(1) The numbers placed over the title of each book are those of the decimal classification proposed by the Railway Congress jointly with the Office Bibliographique International, of Brussels. (See « Bibliographical Decimal Classification as applied to Railway ence », by L. WEISSENBRUCH, in the number for November 1897, of the *Bulletin of the International Railway Congress*, p. 1509).

1960 **385**
CURRIE (R.M.).
Work Study.
London: Sir Isaac Pitman and Sons, Ltd., 39 and 41, Parker Street, W.C.2. (Price: 22 s. 6 d.)

1960 **385 .1 (6)**
East African Railways and Harbours : Report on the year's work 1959.
Published by the General Manager, East African Railways and Harbours, Railway Headquarters, Nairobi. (Price: 5 shillings.)

1960 **656 (0**
LATHAM (Earl).
The Politics of railroad coordination 1933-1936.
One volume (9 1/2 in. × 6 in.) of 338 pages. London: Oxford University Press, Amen House, Warwick Square, E.C.1. (Price : 52 s.)

1960 **385 (09 (4**
NOCK (O.S.) and TREACY (E.).
Main lines across the border.
One volume (9 1/4 in. × 6 1/2 in.) of 155 pages plu 63 pages illustrations.
Edinburgh : Thomas Nelson & Sons, Ltd., Parksid Works. (Price : 25 s.)

[**016.** 385 (05]

II. — PERIODICALS.

In French.

Acier - Stahl - Steel. (Bruxelles.)

1960 **621 .392**
Acier-Stahl-Steel, mai, p. 213.
OBERNDORFER (K.). — Dispositif économique pour le **traitement thermique, sur chantier, des ouvrages soudés.** (2 000 mots & fig.)

Annales de l'Institut Technique du Bâtiment et des Travaux Publics. (Paris.)

1960 **691**
Annales de l'Institut techn. du Bâtiment et des Trav. Publics, mai, p. 425.
DELARUE (J.). — **Fluage et béton précontraint.** (5 000 mots & fig.)

1960 **69**
Annales de l'Institut techn. du Bâtiment et des Trav. Publics, mai, p. 473.
ALBIGES (M.) & GOULET (J.). — **Contreventement des bâtiments.** (7 000 mots & fig.)

1960 **624**
Annales de l'Institut techn. du Bâtiment et des Trav. Publics, mai, p. 537.
PERCHAT (J.) & SAILLARD (Y.). — Compte rendu des essais effectués en vue de fixer les **conditions d'emploi des aciers à haute adhérence des treillis soudés et des tôles déployées.** 1re *Partie* : Essais de grandes poutres en T avec ou sans talon. Recherche d'un profil optimal d'acier à 60 kg/mm² de limite élastique. (7 000 mots, tableaux & fig.)

Bulletin de l'Association Suisse des Electriciens. (Zürich.)

1960 **62**
Bull. de l'Ass. Suisse des Electriciens, 7 mai, p. 461.
COROLLER (P.). — Les **machines analogiques et leurs emplois dans l'industrie.** (3 100 mots & fig.)

1960 **621 .3**
Bull. de l'Ass. Suisse des Electriciens, 21 mai, p. 52
Impulsverstärker mit Transistoren. (400 mots & fig.)

1960 **621 .3**
Bull. de l'Ass. Suisse des Electriciens, 21 mai, p. 52
Zur Frage der **Patentfähigkeit von Transistorschal ungen.** (300 mots & fig.)

1960 **621 .3**
Bull. de l'Ass. Suisse des Electriciens, 4 juin, p. 56
Übertrager für Nanosekunden-Impulse. (700 mots fig.)

Bulletin de la Société Royale Belge des Electriciens. (Bruxelles.)

1960 **621 .3**
Bull. de la Soc. Royale belge des Electriciens, janvier mars, p. 1.
GIARO (J.A.). — **Surtensions atmosphériques dan les réseaux électriques.** Caractéristiques principales e calculs. (18 000 mots & fig.)

Bulletin technique de la Suisse Romande. (Lausanne.)

1960 **62 (0**
Bulletin technique de la Suisse Romande, 4 juin, p. 22
COLONNETTI (G.). — **Les déformations héréditaires** (300 mots & fig.)

Bulletin de l'Union Internationale des Chemins de Fer. (Paris.)

1960 **385 (09 (3) & 385 .113 (3**
Bull. de l'Union Intern. des Chemins de fer, avril, p. 97
Les **Chemins de fer en 1959** (Autriche, Danemark Ethiopie). (5 000 mots.)

1960 **385 (09 (73**
Bull. de l'Union. Intern. des Chemins de fer, avril, p. 110
GETTY (G.E.). — Les **Chemins de fer des Etats-Uni d'Amérique** en 1959. (2 000 mots & tableaux).

C.F.F. (Berne.)

1960 **621** .33 (494)
F.F., mai, p. 3.
BAUER (H.). — La **portée de l'électrification des emins de fer suisses pour notre pays.** (1 300 mots & fig.)

1960 **621** .33 (4)
F.F., mai, p. 8.
L'électrification des chemins de fer de l'Europe occi-ntale. (1 500 mots, tableaux & fig.)

1960 **621** .33 (494)
F.F., mai, p. 15.
DEGEN (A.). — **Pourquoi les Chemins de fer fédéraux ilisent-ils un courant électrique spécial?** (2 500 mots, bleaux & fig.)

Chemins de fer. (Paris.)

1960 **625** .42 (44)
hemins de fer, mars-avril, p. 33.
CAMUS (J.). — Réflexions sur le **Réseau Métropo-tain Régional de Paris.** (2 500 mots & fig.)

1960 **621** .335 (44)
hemins de fer, mars-avril, p. 37.
GAUDICHON (M.). — L'installation du **freinage par écupération sur des BB 16 500** de la S.N.C.F. (2 000 mots fig.)

1960 **656** .222 .5 (44)
hemins de fer, mars-avril, p. 39.
CAIRE (D.). — Le **Service d'Eté de la S.N.C.F.** pour année 1960. (4 000 mots & fig.)

1960 **656** .225 (44)
hemins de fer, mars-avril, p. 48.
PORCHER (B.). — Le **langage des statistiques** n'est as si menteur qu'on le dit. (*Suite à l'art. de D. CAIRE*, . 39.) (3 000 mots, tableaux & fig.)

Containers. (Paris.)

1960 **656** .225
ontainers, n° 23, juin, p. 5.
Les **containers repliables et démontables.** (3 000 mots fig.)

1960 **656** .225 (44)
ontainers, n° 23, juin, p. 23.
Equipement des véhicules de camionnage assurant la rise et la livraison à domicile des expéditions de détail ransportées par la S.N.C.F. (2 000 mots & fig.)

1960 **656** .225 (44)
ontainers, n° 23, juin, p. 38.
FONSART (P.). — Le **trafic français en grands con-ainers.** Les activités de la « Compagnie Nouvelle de adres ». (1 200 mots & fig.)

Echos des Communications. (Bruxelles.)

1960 **656** (493)
Echos des Communications, n° 1, p. 7.
Les **problèmes de la politique des transports en Belgique.** (6 000 mots & fig.)

Economie et Technique des Transports. (Zürich.)

1960 **385** (061 .5
Economie et Technique des Transports, n° 130, 1-3, p. 6.
BAEYENS (F.). — L'**Office de Recherches et d'Essais.** Bureau d'études international des Administrations ferroviaires. (1 000 mots.)

1960 **385** (09 (6)
Economie et Technique des Transports, n° 130, 1-3, p. 9.
PIERROZ (J.R.). — Le **Rail en Afrique Occidentale et Equatoriale.** (*A suivre.*) (1 500 mots & fig.)

Génie Civil. (Paris.)

1960 **621** .335 (44)
Génie Civil, n° 3516, 15 mai, p. 217.
MACHEFERT-TASSIN (Y.). — Les **locomotives BB-9400 à bogies monomoteurs et courant continu 1500 V** de la Société Nationale des Chemins de fer Français. (6 000 mots & fig.)

1960 **721** .4
Génie Civil, n° 3516, 15 mai, p. 231.
BATICLE (E.). — Sur la **stabilité de l'équilibre des voûtes circulaires** soumises à une pression uniforme. (1 000 mots.)

Mémoires de la Société des Ingénieurs Civils de France. (Paris.)

1960 **624** .51 (44)
Mémoires de la Soc. des Ing. Civils de France, mai, p. 23.
HUET (M.). — Le **pont de Tancarville.** (6 000 mots & fig.)

Revue Brown Boveri. (Baden.)

1959 **621** .316
Revue Brown Boveri, septembre, p. 497.
Cellules blindées avec disjoncteurs magnétiques débrochables à 3.6 et 7.2 kV. (6 200 mots & fig.)

Revue Electricité — Electrotechnique Générale. (Bruxelles.)

1960 **621** .31
Revue Electricité — Electrotechnique Générale, Vol. III, n° 2, p. 83.
AIGRAIN (P.). — Limitations théoriques aux **performances des transistors.** (8 700 mots & fig.).

1960 **621** .315
Revue Electricité — Electrotechnique Générale, Vol. III, n°2, p. 93.
AIGRAIN (P.). — Les **autres structures semi-conductrices.** (10 000 mots & fig.)

Revue Générale des Chemins de fer. (Paris.)

1960 **625** .13 (44)
Revue Générale des Chemins de fer, avril, p. 189.
FEUGUEUR (L.) et SOYER (R.). — **Contrôle géologique des tunnels** de la Région de l'Ouest de la S.N.C.F. (4 000 mots & fig.)

1960 **656** .256 (44)
Revue Générale des Chemins de fer, avril, p. 200.
SABATTIER (R.), BRUNEL (L.) & DARNE (R.). — Le **block manuel de voie unique** type S.N.C.F.A. (2 000 mots, planches & fig.)

1960 **625** .27 (44)
Revue Générale des Chemins de fer, avril, p. 208.
KIPFER (W.). — **L'analyse mécanographique des consommations de matières et des stocks** des Services du Matériel et de la Traction de la S.N.C.F. (3 000 mots & fig.)

1960 **621** .332
Revue Générale des Chemins de fer, avril, p. 216.
MAUPOMÉ et TARRIDEC. — La **voiture d'observation et de mesures des caténaires.** (2 000 mots & fig.)

1960 **625** .26 (44)
Revue Générale des Chemins de fer, avril, p. 222.
BOICHE. — Les **nouvelles installations des ateliers de réparation de wagons** de la Région de la Méditerranée de la S.N.C.F. à Nîmes-Courbessac. (2 500 mots & fig.)

1960 **62** (4)
Revue Générale des Chemins de fer, avril, p. 230.
L'**énergie** en Europe — Nouvelles perspectives. (2 000 mots & tableaux.)

1960 **625** .1 : **621** .33 (44)
Revue Générale des Chemins de fer, mai, p. 253.
ALIAS. — **Mise au gabarit « Electrification » du souterrain de Foug.** (2 500 mots & fig.)

1960 **625** .13 (44)
Revue Générale des Chemins de fer, mai, p. 259.
BRUGE, FAIVRE et SAINT-DENIS. — La **reconstruction du pont de La Vallée** (ligne de Montparnasse à Versailles-Chantiers). (4 000 mots & fig.)

1960 **625** .212
Revue Générale des Chemins de fer, mai, p. 269.
Le **reprofilage sur place des roues ou bandages.** (700 mots.)

1960 **625** .212 (44)
Revue Générale des Chemins de fer, mai, p. 271.
MICAUD, HERISSON et GAUTRET. — Le **banc de reprofilage sur place des roues** du dépôt de Montrouge. (3 500 mots & fig.)

1960 **621** .135 .2 (44) & **625** .143 .3 (44
Revue Générale des Chemins de fer, mai, p. 280.
LAFAYE et VORBURGER. — **Usure des rails e des boudins de roues dans les courbes.** Extension d graissage sur les lignes de la S.N.C.F. (2 000 mots & fig.

1960 **385** .587 (44
Revue Générale des Chemins de fer, mai, p. 288.
LE DANTEC et DANEMARK. — **Mécanisation d la manutention et de la gestion des stocks** au Magasi général des imprimés de Noisy-le-Sec. (2 500 mots & fig.

1960 **385** (4
Revue Générale des Chemins de fer, mai, p. 294.
Où en est la **normalisation des chemins de fer euro péens?** (1 000 mots.)

1960 **385** (09 (44
Revue Générale des Chemins de fer, mai, p. 297.
L'**activité de la S.N.C.F.** en 1959. (1 500 mots.)

1960 **656** .22
Revue Générale des Chemins de fer, mai, p. 299.
La **location des places** depuis son origine. (1 000 mots.

Revue Universelle des Mines. (Liège.)

1960 **62** (0
Revue Universelle des Mines, avril, p. 177.
PIRARD (A.). — Considérations sur la **méthode d moiré en photoélasticité.** (10 000 mots & fig.)

1960 **62**
Revue Universelle des Mines, mai, p. 227.
BUCHET (E.). — Introduction à la **régulation auto matique.** (7 000 mots & fig.)

1960 **621** .39
Revue Universelle des Mines, mai, p. 241.
FRENAY (F.) & LOUIS (H.). — L'**Institut Interna tional de la Soudure** (I.I.S.). (4 000 mots.)

La Traction Electrique dans les Chemins de fer. (Bruxelles.)

1960 **621** .431 .72 (43
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 4, avril, p. 173
GAEBLER (G.A.). — Les **engins moteurs Diesel** de la Deutsche Bundesbahn vus sous l'angle de l'unification. (4 700 mots & fig.)

1960 **621** .335 (47
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 4, avril, p. 194.
CAIRE (D.). — Les constructeurs français Alsthom et MTE (Sfac-Jeumont-SW) viennent de livrer aux Chemins de fer de l'U.R.S.S. la première des 50 **locomotives du type CC** de 6 000 ch commandées en septembre 1957. (6 200 mots & fig.)

1960 **621** .335 (44)
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 4, avril, p. 215.
AMET (M.). — La **locomotive bi-fréquence** BB 30 003 équipée de redresseurs au silicium. (750 mots & fig.)

Les Transports Publics. (Berne.)

1960 **656** .211 (45)
Les Transports Publics, mai, p. 11.
La **Gare centrale de Rome**. (*Suite.*) (1 000 mots.)

La Vie du Rail. (Paris.)

1960 **656** .212 .9 (44)
La Vie du Rail, 13 mars, p. 3.
SOMON (D.). — Le **bureau commercial** de la gare de Lille-Saint-Sauveur. (1 000 mots & fig.)

1960 **621** .33 (54)
La Vie du Rail, 13 mars, p. 15.
L'**Inde adopte le monophasé 50 Hz.** (1 500 mots & fig.)

1960 **621** .33 (44)
La Vie du Rail, 20 mars, p. 16.
Electrification Est-Paris : mise en service de la 2e étape Sarrebourg-Blainville. (1 000 mots & fig.)

1960 **621** .33 (44)
La Vie du Rail, 27 mars, p. 3.
Mise en service de la traction électrique Sarrebourg-Blainville. Le **Central sous-stations de Nancy.** (1 500 mots & fig.)

1960 **385** (09 .2
La Vie du Rail, 27 mars, p. 8.
LECOMTE (Ch.). — Parmi les **pionniers de la signalisation ferroviaire** : Albert MOUTIER (1862-1942). (1 400 mots & portrait.)

1960 **388** (44)
La Vie du Rail, 3 avril, p. 3.
CASSY (M.). — Le renouveau du **métro aérien suspendu.** La Ligne expérimentale de Châteauneuf-sur-Loire. (3 000 mots & fig.)

1960 **656** .21 (44)
La Vie du Rail, 3 avril, p. 15.
Les **nouvelles installations de Saint-Pierre-des-Corps.** Gare voyageurs et dépôt. (2 000 mots & fig.)

1960 **621** .33 (43)
La Vie du Rail, 10 avril, p. 8.
La **section Ratisbonne-Passau est électrifiée.** (500 mots & fig.)

1960 **621** .138 .5 (44)
La Vie du Rail, 10 avril, p. 13.
Les **ateliers de La Folie-La Garenne.** (2 500 mots & fig.)

1960 **656** .257 (44)
La Vie du Rail, 17 avril, p. 6.
Le **poste électrique de Lunéville.** (800 mots & fig.)

1960 **625** .143 .3 (43)
La Vie du Rail, 17 avril, p. 11.
Une **meuleuse légère des rails.** (400 mots & fig.)

1960 **621** .335 (52)
La Vie du Rail, 17 avril, p. 22.
Les **trains à unités multiples** des Chemins de fer Japonais. (600 mots & fig.)

In German.

Die Bundesbahn. (Darmstadt und Köln.)

1960 **656** .235 .6
Die Bundesbahn, Nr 5, März, S. 224.
COLIN (H.). — **Der Weg zu einem gemeinsamen europäischen Expressguttarif.** Zur Einführung des TCEX am 1. Januar 1960. (5 000 Wörter.)

1960 **625** .143
Die Bundesbahn, Nr 6, März, S. 243.
SCHRAMM (G.). — **Reisen auf geschweissten Gleisen.** (3 000 Wörter.)

1960 **656** .213
Die Bundesbahn, Nr 6, März, S. 249.
KRÜGER (H.). — **Seehäfen und Schienenverkehr.** (4 000 Wörter.)

1960 **656**
Die Bundesbahn, Nr 6, März, S. 255.
DITT (B.). — Berufsverkehr mit Bussen des Gelegenheitsverkehrs im **Wettbewerb mit Omnibuslinien- und Schienenverkehr.** (1 000 Wörter.)

1960 **656** (43)
Die Bundesbahn, Nr 6, März, S. 257.
BAUER (K.). — **Gesetz gegen Wettbewerbsbeschränkungen** und Deutsche Bundesbahn. (7 000 Wörter & Abb.)

1960 **656** .212 .5
Die Bundesbahn, Nr 7, April, S. 299.
FAKINER (F.). — **Das Rangieren konzentrieren.** (7 000 Wörter & Abb.)

Deutsche Eisenbahntechnik. (Berlin.)

1960 **656** .1 & **656** .2
Deutsche Eisenbahntechnik, März, S. 89.
HAMMER (W.). — Eine technisch-ökonomische Analyse von Transportmitteln für den **kombinierten Verkehr Schiene-Strasse.** (3 000 Wörter, Tabellen & Abb.)

1960 **656** .1 & **656** .2
Deutsche Eisenbahntechnik, März, S. 91.
RICHTER-DE VROE (F.). — Die **wirtschaftliche Aufteilung des Gesamtverkehrs auf Schiene und Strasse.** (3 000 Wörter.)

1960 **656** .226 (47)
Deutsche Eisenbahntechnik, März, S. 99.
HUPE (W.). — Der **Behälterverkehr** in Moskau, seine Struktur, Organisation und die technischen Be- und Entlademittel. (3 000 Wörter & Abb.)

1960 **656** .225
Deutsche Eisenbahntechnik, März, S. 104.
RAUSCH (J.) & POTTHOFF (G.). — **Fahrzeitverluste bei Langsamfahrstellen.** (1 000 Wörter & Tafel.)

1960 **625** .251
Deutsche Eisenbahntechnik, März, S. 106.
HABEL (R.). — Die **Kräfte am Bremsklotz.** (1 000 Wörter & Abb.)

1960 **625** .216
Deutsche Eisenbahntechnik, März, S. 108.
HEISS (H.). — Über die **automatische Kupplung** bei den Eisenbahnen. (1 500 Wörter.)

1960 **625** .2
Deutsche Eisenbahntechnik, März, S. 110.
NÜSKEN (F.). — **Waagerecht liegende Zugstange unter der Biegewirkung des Eigengewichtes.** (1 000 Wörter & Abb.)

1960 **621** .133 .1 (43)
Deutsche Eisenbahntechnik, März, S. 112.
WENDLER (H.). — Die **Wirtschaftlichkeit der Kohlenstaublokomotiven** der Deutschen Reichsbahn. (3 000 Wörter & Abb.)

1960 **656** .25
Deutsche Eisenbahntechnik, März, S. 118.
ZERCHE (W.). — Das **automatische Ablaufstellwerk** (Bauart WSSB). (4 000 Wörter & Abb.)

1960 **656** .212 .5
Deutsche Eisenbahntechnik, März, S. 125.
WITTING (R.). — **Geschwindigkeitsmessung im Rangierdienst der Eisenbahnen** mittels pulsfreien Hochfrequenz — Reflexionsverfahrens zur Steuerung von Gleisbremsen. (3 000 Wörter & Abb.)

1960 **625** .17
Deutsche Eisenbahntechnik, April, S. 147.
FREITAG (K.). — Der **ökonomisch wirksamste Einsatz der Arbeitskräfte in der Bahnunterhaltung.** (6 000 Wörter.)

1960 **625** .23 (43)
Deutsche Eisenbahntechnik, April, S. 165.
NIED (F.). — **Rekonstruktion der zwei- und dreiachsigen Reisezugwagen** der Deutschen Reichsbahn. (5 000 Wörter & Abb.)

1960 **698**
Deutsche Eisenbahntechnik, April, S. 175.
WIRTH (W.). — **Farbspritzstand auch für Lokomotiven?** (1 200 Wörter & Abb.)

1960 **669** .1
Deutsche Eisenbahntechnik, April, S. 177.
GERISCHER (K.). — Der Einfluss des Kupfergehaltes auf die **Witterungsbeständigkeit der Baustähle** für Reisezug- und Güterwagen. (1 300 Wörter.)

Der Eisenbahningenieur. (Frankfurt am Main.)

1960 **625** .162
Der Eisenbahningenieur, April, S. 105.
SPANG (J.). — **Fahrbahnbeläge auf Bahnübergängen** mit Kraftfahrzeugverkehr. (4 500 Wörter, Tafeln & Abb.)

1960 **621** .87 (43)
Der Eisenbahningenieur, April, S. 115.
VOGEL (H.-H.). — **75-t-Krane** der Deutschen Bundesbahn 25 Jahre im Einsatz. (1 200 Wörter & Abb.)

1960 **53**
Der Eisenbahningenieur, April, S. 117.
SCHRAMM (G.). — **Masseneinheit und Krafteinheit-Kilogramm und Kilopond.** (2 000 Wörter & Abb.)

1960 **526** (43)
Der Eisenbahningenieur, April, S. 121.
MARTIN (G.). — **Luftbildmessung unter besonderer Berücksichtigung der Belange** der Deutschen Bundesbahn. (2 000 Wörter & Abb.)

1960 **625** .14 (43)
Der Eisenbahningenieur, April, S. 125.
Die **Oberbaufachtagung** 1960. (1 500 Wörter & Abb.)

E.T.R. - Eisenbahntechnische Rundschau. (Köln-Darmstadt.)

1960 **625** .1 (43)
Eisenbahntechnische Rundschau, März, S. 103.
SÜSS (W.) und WITZ (K.). — Probleme bei dem **Bau der Leuchtenberg-Unterführung** in München. (8 000 Wörter & Abb.)

1960 **621** .431 .72
Eisenbahntechnische Rundschau, März, S. 117.
ZIELKE (G.). — Gedanken über die **Unterhaltung von Dieselschienenfahrzeugen.** Wirtschaftliche Zusammenhänge zwischen Laufleistung und Aufwand. (3 000 Wörter & Abb.)

1960 **621** .8 & **621** .431 .72
Eisenbahntechnische Rundschau, März, S. 123.
FRIEDRICH (K.). — **Hydraulische Kraftübertragungen für Diesel-Triebwagen und- Lokomotiven.** Entwicklungsgeschichte, Betriebs- und Werkstättenerfahrungen. (3 000 Wörter & Abb.)

1960 **625** .214 (43)
Eisenbahntechnische Rundschau, März, S. 129.
HEINRICH (G.). — **Achslager an Güterwagen** der Deutschen Bundesbahn und ihr Verhalten im Betrieb. (2 000 Wörter & Abb.)

Elektrische Bahnen. (München.)

1960 **625** .234 (43)
lektrische Bahnen, Heft 4, S. 73.
BLATZ (H.). — **Elektrische Zugheizung** der Deutschen undesbahn für mehrere Betriebsspannungen. (5 000 Vörter & Abb.)

1960 **656** .25
lektrische Bahnen, Heft 4, S. 79.
GREGORK (M.). — Ein Beitrag zur Lösung des roblems der **automatischen Zugförderung bei Stadt-chnellbahnen.** (4 800 Wörter & Abb.)

1960 **625** .282 (498)
lektrische Bahnen, Heft 4, S. 84.
HONDIUS (H.). — **2 100 PS dieselelektrische Loko-notiven der Baureihe 060-DA** für die Rumänischen taatsbahnen. (4 700 Wörter & Abb.)

E.T.Z. — Elektrotechnische Zeitschrift. (Berlin.)

1960 **621** .31
E.T.Z. Elektrotechnische Zeitschrift, 16. Mai, S. 237.
WICHMANN (A.). — Der **Temperatureinfluss bei solationsprüfungen mit Gleichspannung an elektrischen Maschinen.** (8 000 Wörter & Abb.)

1960 **621** .35
E.T.Z. Elektrotechnische Zeitschrift, 16. Mai, S. 244.
FLEGLER (E.) und STEIN (W.). — **Lebensdauer-rüfungen an Kraftfahrzeugbatterien.** (6 300 Wörter & Abb.)

1960 **621** .31
E.T.Z. Elektrotechnische Zeitschrift, 16. Mai, S. 264.
KEIL (A.). — Die **Bedeutung des « Kleinklimas » in ekapselten Schaltgeräten.** (1 700 Wörter & Abb.)

Europa Verkehr. (Darmstadt.)

1960 **656** .213 (43)
Europa Verkehr, Heft 1, S. 20.
HEINZE (G.). — Die **Bedeutung der Eisenbahn für en Übersee-Export, Übersee-Import und Übersee-Durch-uhrverkehr.** (Dargestellt an den Verhältnissen des See-afens Hamburg.) (2 000 Wörter & Abb.)

Glasers Annalen. (Berlin.)

1960 **625** .282 (43)
Glasers Annalen, März, S. 75.
ZIELKE (G.). — Weitere Rationalisierungsmassnah-nen in der **Unterhaltung der Dieseltriebfahrzeuge** der Deutschen Bundesbahn. (3 000 Wörter, Tabellen & Abb.)

1960 **625** .23
Glasers Annalen, März, S. 89.
DRECHSLER (F.). — **Nahverkehrswagen in Alumi-iumbauweise.** (*Fortsetzung folgt.*) (3 000 Wörter, Tabellen & Abb.)

1960 **621** .18
Glasers Annalen, März, S. 96.
DÄCHE (A.). — **Einbau eines Hochleistungsdampf-kessels in das Heizkraftwerk** eines Ausbesserungswerkes. (4 000 Wörter & Abb.)

1960 **612** .33
Glasers Annalen, März, S. 111.
VDE-Fachtagung « Gleichstrom-Bahnen und- Fahrzeuge » am 8. und 9. März 1960 in Hannover. (2 000 Wörter.)

Signal und Draht. (Frankfurt am Main.)

1960 **656** .257
Signal und Draht, April, S. 69.
REBMANN (F.). — **Vermeidung störender Spiegelungen in den Stellwerkfenstern** durch zweckmässige Formgebung des Stellraums. (1 600 Wörter & Abb.)

1960 **656** .254
Signal und Draht, April, S. 73.
SCHEPP (A.). — **Eine über Funk ferngesteuerte Bremsprüfanlage** für Güterzüge. (1 200 Wörter & Abb.)

1960 **656** .25 (43)
Signal und Draht, April, S. 77.
DREESEN (W.). — Erste Versuche mit einer **Grabenziehmaschine.** (2 000 Wörter & Abb.)

In English.

Electric Traction on the Railways. (Bruxelles.)

1960 **625** .335 (42)
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 4, April, p. 159.
MANSER (A.W.). — **London Transport new Piccadily Line trains.** (2 500 words & fig.)

1960 **621** .332 (469)
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 4, April, p. 168.
TRITTER (R.) and LORENZ (C.). — The **overhead traction equipment** of the lines of the Companhia dos Caminhos de Ferro Portugueses, electrified for single-phase A.C., 50 c/s, 25 kV. (3 400 words & fig.)

1960 **621** .335
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 4, April, p. 181.
OLSON (P.E.) and JOHNSSON (S.). — **Transversal forces acting between the wheel and the rails.** An experimental investigation. (3 600 words & fig.)

1960 **621** .337 (42)
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 4, April, p. 197.
Traction equipment for 50 c/s trains. (1 950 words & fig.)

1960 **621** .33 (52)
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 4, April, p. 203.
Electrification on two systems in Japan. (1 400 words & fig.)

The Engineer. (London.)

1960 **621** .132 .1 (09 (42)
The Engineer, February 26, p. 351; March 4, p. 384; March 11, p. 421.
ABBOTT (R.A.S.). — **The Fairlie locomotive. Its use throughout the world.** (13 000 words & figs.)

1960 **625** .143
The Engineer, March 4, p. 386.
TURNER (T.H.). — **Railway rails.** (1 900 words & figs.)

1960 **621** .131 .3 (42)
The Engineer, March 18, p. 462.
POULTNEY (E.C.). — **Locomotive coal trials.** (6 200 words & figs.)

1960 **385** (09 (42)
The Engineer, April 1, p. 559; April 8, p. 594; April 15, p. 634.
HOLCROFT (H.). — **The Great Western Railway and its personnel.** (11 200 words & figs.)

1960 **621** .431 .72
The Engineer, April 1, p. 573.
Diesel locomotive running and maintenance. (1 000 words & figs.)

1960 **624** & **656**
The Engineer, April 8, p. 607.
Proposal for a road and rail crossing of the Channel. (1 800 words & figs.)

1960 **624** .8 (42)
The Engineer, April 22, p. 675.
Kingsferry lifting bridge. (2 500 words & figs.)

1960 **62**
The Engineer, April 22, p. 676.
PROCTER (A.N.). — **Rules and regulations for structural steelwork.** (1 300 words & figs.)

1960 **656** .212 .5 (42)
The Engineer, April 22, p. 679.
Automatic control at Margam marshalling yard. (1 800 words & figs.)

Engineering. (London.)

1960 **625** .4 (44
Engineering, March 18, p. 399.
French overhead railway. (300 words & figs.)

1960 **624** & **656**
Engineering, April 8, p. 475.
Details of the cross-channel bridge. (1 300 words & figs.)

1960 **625** .2 (01
Engineering, May 13, p. 669.
LUCAS (A.H.). — **The stress analysis of railway coaches.** (2 400 words & figs.)

1960 **625** .216 (42)
Engineering, June 3, p. 769.
Evolving high speed railway drawgear. (2 400 words & figs.)

Gas and Oil power. (London.)

1960 **621** .431 .72 (42)
Gas and Oil power, March, p. 57.
Type 3 locomotives for Southern Region. (1 400 words & figs.)

1960 **621** .431 .72 (52)
Gas and Oil power, March, p. 114.
Railway modernization in Japan. (1 200 words & figs.)

Indian Railways. (New-Delhi.)

1960 **621** .33 (54)
Indian Railways, Annual, April, p. 41.
AWASTY (H.D.). — **A.C. traction comes to India.** (1 800 words & figs.)

1960 **621** .335 (54)
Indian Railways, Annual, April, p. 101.
LALL (K.C.). — **India now makes electric locos.** (1 100 words & figs.)

1960 **621** .335 (54) & **621** .431 .72 (54)
Indian Railways, Annual, April, p. 119.
SINDHU (B.S.). — Indigenous manufacture of **Diesel and electric locomotives** will accelerate expansion of Indian Railways. (2 000 words & figs.)

1960 **656** .25
Indian Railways, Annual, April, p. 185.
WALTER (J.G.). — **Signalling takes advantages of new techniques.** (2 300 words & figs.)

Indian Railway Technical Bulletin. (Lucknow.)

1960 **624** .63 (54)
Indian Railway Technical Bulletin, February, p. 8.
CHOPRA (D.N.). — **Sixty-feet span prestressed R.C.C. girders for two B.G. railway bridges.** (3 000 words & figs.)

roceedings of the Institution of Mechanical Engineers. (London.)

1960 **625** .214
roceedings of the Institution of Mechanical Engineers, Vol. 173, No. 15, p. 417.
RIEGER (N.F.). — **An experimental investigation of ıe pressurized air-lubricated journal bearing in the igh-speed range.** (11 pages, illustrated.)

Japanese Railway Engineering. (Tokyo.)

1960 **725** .215 (52)
apanese Railway Engineering, March, p. 3.
TADASHI MATSUDAIRA. — **Development of air pring trucks in Japan.** (2 400 words & figs.)

1960 **621** .431 .72 (52)
apanese Railway Engineering, March, p. 12.
ATSUO KINUGASA. — **Diesel locomotives and Diesel railcars in J.N.R.** (2 600 words & figs.)

1960 **656** .25 (52)
apanese Railway Engineering, March, p. 22.
TETSURO MARUHAMA. — **Microwave communication system in J.N.R.** (2 200 words & figs.)

1960 **625** .172 (52)
apanese Railway Engineering, March, p. 30.
MASASHI HAYAKAWA. — **High speed track ıspection car.** (1 000 words & figs.)

Modern Railroads. (Chicago.)

1960 **625** .216 (73)
Modern Railroads, April, p. 73.
Underframe tube protects lading. (800 words & figs.)

1960 **625** .22 (73)
Modern Railroads, April, p. 77.
DONNELLY (C.W.). — **AAR uncovers clearance lues.** (1 100 words & figs.)

Modern Transport. (London.)

1960 **621** .431 .72 (42)
Modern Transport, February 20, p. 11.
Type 3 - 1 550 HP Diesel-electric locomotives. (1 300 ords & figs.)

1960 **656** .2
Modern Transport, March 5, p. 11; March 19, p. 13.
Pneumatic-tyred trackway systems. 1 and 2. (3 000 ords & figs.)

1960 **385** .52 (42)
Modern Transport, March 12, p. 3.
Scales or railway pay. (1 000 words & tables.)

1960 **656** .2 (42)
Modern Transport, March 12, p. 5.
WHITE (A.J.). — **Road and rail co-ordination.** (1 800 words.)

1960 **625** .172 (42)
Modern Transport, March 12, p. 11.
Railway weed control. (900 words & figs.)

1960 **625** .13 (42 + 44)
Modern Transport, March 19, p. 3.
CAMERON (M.A.). — **The Channel tunnel.** (2 000 words.)

1960 **621** .132 .1 (68)
Modern Transport, March 19, p. 7.
Narrow-gauge locomotives for South Africa. (1 100 words & figs.)

1960 **656** .2 (54)
Modern Transport, March 19, p. 17; May 21, p. 7.
LANGLEY (C.A.). — **India revisited : Indian Railway Organisation** (*to be continued*). (1 900 words.)

1960 **621** .431 .72 (6)
Modern Transport, March 19, p. 28.
Main-line Diesels for Sudan. (1 200 words & figs.)

1960 **656** .2 (68)
Modern Transport, March 19, p. 33.
du PLESSIS (D.H.C.). — **One hundred years of railways in South Africa.** (1 200 words & figs.)

1960 **621** .138 .5 (42)
Modern Transport, March 26, p. 13.
Modernisation of Key Southern Region depot. (1 400 words & figs.)

1960 **651**
Modern Transport, April 2, p. 3.
HINDS (G.H.). — **Electronics in transport.** — Limitations and potentialities. (1 500 words.)

1960 **656** .223 (42)
Modern Transport, April 2, p. 5; April 9, p. 11.
MARGETTS (F.C.). — **Railway wagons.** — **Use and misuse** (*to be continued*). (1 200 words.)

1960 **625** .232 (42) & **625** .4 (42)
Modern Transport, April 9, p. 5.
Introducing new tube cars. (1 000 words & figs.)

1960 **656** .212 (42)
Modern Transport, April 9, p. 13.
Merseyside parcels depot. (900 words & figs.)

The Oil Engine. (London.)

1960 **621** .431 .72 (42)
The Oil Engine, February, p. 285.
Western Region's type 4 Diesel-hydraulic locomotives. (1 800 words & figs.)

1960 **621** .431 .72 (42)
The Oil Engine, March, p. 314.
New features in type-3 locomotive. (1 200 words & figs.)

1960 **621** .431 .72 (6)
The Oil Engine, March, p. 317.
The Sudan's latest locomotives. (1 200 words & figs.)

1960 **621** .438
The Oil Engine, March, p. 382.
Activities concerning gas turbine locomotives. (2 200 words & figs.)

1960 **621** .431 .72 (45)
The Oil Engine, May, p. 15.
Compact Italian main-line locomotive. (1 000 words & figs.)

Journal and Proceedings

The Permanent Way Institution. (Tonbridge.)

1960 **385** (09 (493)
Journal, The Permanent Way Institution, Part 1, p. 26.
JACOPS (A.). — **Belgium and the Belgian Railways.** (3 600 words & figs.)

1960 **625** .144 .1 (492)
Journal, The Permanent Way Institution, Part 1, p. 47.
DEENIK (J.F.). — **Long welded track in the Netherlands.** (1 000 words & figs.)

Railway Age. (New York.)

1960 **625** .4
Railway Age, February 29, p. 37.
Monorail : What it is... and what it 's not. (900 words & figs.)

1960 **625** .142 .4 (73)
Railway Age, March 14, p. 9.
Concrete-tie service tests begin. (2 000 words & figs.)

1960 **625** .242 (73)
Railway Age, March, p. 18.
N & W to build 85-ton hoppers. (400 words & figs.)

Railway Engineering. (Cape Town.)

1960 **621** .392
Railway Engineering, February, p. 20.
AHLERT (E.W.). — **The thermit rail welding process — its development and applications.** (1 200 words & figs.)

1960 **625** .28
Railway Engineering, February, p, 23.
U.S.A. Engineer examines future trends in railway motive power. (1 100 words & fig.)

1960 **621** .335 (42)
Railway Engineering, February, p. 27.
DAY (J.R.). — **First high-powered A.C. locomotive for Britain's 50-cycle system.** (900 words.)

1960 **651** (42)
Railway Engineering, February, p. 31.
Electronic system improves C.T.C. (600 words & figs.)

The Railway Gazette. (London.)

1960 **656** .2 (42)
The Railway Gazette, March 4, p. 274.
HALL (R.W.). — **Streamlining the railways in North Eastern England.** (1 600 words, table and map.)

1960 **621** .431 .72 (42)
The Railway Gazette, March 4, p. 278.
British Railways Type " 2 " Diesel-hydraulic locomotive. (1 800 words & figs.)

1960 **385** .52 (42)
The Railway Gazette, March 11, p. 301.
Report of the Railway Pay Committee of Inquiry. (2 400 words.)

1960 **621** .438 (47)
The Railway Gazette, March 11, p. 305.
ASEEV (E.N.) and SHEBROVSKY (A.F.). — **Russian 3 000 HP natural-gas locomotive.** (1 400 words & figs.)

1960 **621** .33 (42)
The Railway Gazette, March 11, p. 308.
Planning the Victoria line, L.T.E. (2 600 words & figs.)

1960 **656** .2 (54)
The Railway Gazette, March 18, p. 334.
LANGLEY (C.A.). — **Recent progress on the Indian Railways.** (4 000 words.)

1960 **656** .212 (42)
The Railway Gazette, March 11, p. 337.
Modernisation of freight operation and terminals in the Western Region. (1 600 words.)

1960 **621** .33 (42)
The Railway Gazette, March 11, p. 366.
Civil engineering for main-line electrification. (2 200 words & figs.)

1960 **656** .212 .5 (42)
The Railway Gazette, April 1, p. 390.
HAYGREEN (C.A.). — **The North Eastern Region marshalling yard plan.** (1 800 words & figs.)

1960 **625** .142 .4 (68)
The Railway Gazette, April 1, p. 396.
Concrete sleeper insulation on South African Railways. (400 words & fig.)

1960 **625** .215
ıe Railway Gazette, April 8, p. 418.
KOFFMAN (J.L.). — **Bogie pitching.** (1 900 words figs.)

1960 **625** .172 (42)
ıe Railway Gazette, April 8, p. 422.
WEST (R.L.). — **Use of weedex in chemical weed ntrol on British Railways.** (1 400 words & figs.)

1960 **621** .335 (494)
ıe Railway Gazette, April 8, p. 426.
Swiss dual-frequency shunting locomotives. (500 words fig.)

1960 **625** .4 (469)
ıe Railway Gazette, April 8, p. 427.
Metropolitan Underground Railway of Lisbon. (1 400 ords & figs.)

1960 **656** .212 .5 (42)
ıe Railway Gazette, April 15, p. 450.
Margam marshalling yard. (3 000 words & figs.)

1960 **656** .25
ıe Railway Gazette, April 22, p. 479.
New signalling between Dole and Vallorbe, S.N.C.F. 100 words & figs.)

1960 **625** .236 (42)
ıe Railway Gazette, April 22, p. 481.
Carriage washing in the Eastern Region. (300 words fig.)

Diesel Railway Traction. (London.)

1960 **621** .431 .72
iesel Railway Traction, March, p. 109.
Large Voith transmission. (800 words & figs.)

1960 **621** .431 .72
iesel Railway Traction, March, p. 111.
Recent railway oil engine activity. (1 600 words & s.)

1960 **621** .135 .2 & **621** .431 .72
iesel Railway Traction, March, p. 114.
Wheel-flange lubrication. (900 words & figs.)

1960 **621** .431 .72 (42)
esel Railway Traction, March, p. 117.
British 1 000 HP Diesel-hydraulic units. (1 800 words figs.)

---

ailway Locomotives and Cars. (New York.)

1960 **621** .431 .72 (73)
ilway Locomotives and Cars, March, p. 24.
U.S. Roads order Diesel-Hydraulics. (1 500 words figs.)

1960 **621** .431 .72 (71)
Railway Locomotives and Cars, April, p. 23.
CNR " centralizes " Diesel maintenance. (1 200 words & figs.)

1960 **625** .242 (73)
Railway Locomotives and Cars, April, p. 27.
Gondolas have aluminum bodies. (600 words & figs.)

1960 **625** .242 (73)
Railway Locomotives and Cars, April, p. 37.
N & W will build 85-ton hopper cars. (800 words & figs.)

Railway Steel Topics. (Sheffield.)

1960 **62** (01
Railway Steel Topics, No. 3, p. 23.
HUDSON (J.C.). — The corrosion of iron and steel. (4 000 words & figs.)

Trains Illustrated. (London.)

1960 **656** .22 (42)
Trains Illustrated, May, p. 276.
FIENNES (G.F.). — **Unpunctuality — the cause and the cure.** (3 600 words & figs.)

1960 **621** .131 .3
Trains Illustrated, May, p. 300.
WEEDEN (G.A.). — **Engine driving — is it an art or a science ?** — III. (800 words & figs.)

In Spanish.

Ferrocarriles y Tranvias. (Madrid.)

1960 **625** .143 .4
Ferrocarriles y Tranvias, vol. 26-I, nº 293, p. 2.
MENDIZABAL (D.). — Aplicaciones y resultados experimentales de **juntas alternadas en carriles con distancias reducidas.** (2 000 palabras.)

1960 **656**
Ferrocarriles y Tranvias, vol. 26-I, nº 293, p. 5.
TELLO Y PORTILLO (I.-J.). — **Libertad de contratación e igualdad de trato en el transporte ferroviario.** (1 000 palabras.)

1960 **656**
Ferrocarriles y Tranvias, vol. 26-I, nº 293, p. 8.
ALIX (L.). — En defensa del ferrocarril. **Coordinación de transportes.** (1 200 palabras.)

1960 **656** .222 .5
Ferrocarriles y Tranvias, vol. 26-II, nº 294, p. 30.
NOGUES CAIZ (J.). — Los **transportes ferroviarios de viajeros** vistos a través de la estadística comparada. (3 000 palabras & fig.)

1960 **625** .244
Ferrocarriles y Tranvias, vol. 26-II, nº 294, p. 44.
MORENO GUERRA (A.). — **Trenes frigorificos.** (1 200 palabras.)

1960 **385**
Ferrocarriles y Tranvias, vol. 26-II, nº 294, p. 46.
DE INCHAURRAGA (P.). — **Perspectivas de la vida del ferrocarril.** (1 000 palabras.)

In Italian.

Giornale del Genio Civile. (Roma.)

1960 **721** .4
Giornale del Genio Civile, febbraio-marzo, p. 123.
CALLARI (C.E.). — Sviluppo e controllo di un **calcolo approssimato di volte sottili cilindriche.** (*Parte seconda.*) (6 000 parole, tabelle & fig.)

Ingegneria Ferroviaria. (Roma.)

1960 **537**
Ingegneria Ferroviaria, marzo, p. 188.
BELLOMI (C.). — I circuiti a rete e le matrici nell' algebra dei **circuiti elettrici variabili.** (8 000 parole & fig.)

1960 **621** .335 (45)
Ingegneria Ferroviaria, marzo, p. 215.
GIOVANARDI (G.) & MAFFEI (G.). — **Convogli bicorrente con apparecchiature T.I.B.B.** in servizio sulla rete F.S. (4 000 parole & fig.)

1960 **656** .281 (45)
Ingegneria Ferroviaria, marzo, p. 222.
CAVAGNARO (G.). — Un difficile intervento dei **mezzi di soccorso nel recupero di materiale ferroviario** sviato nella stazione di Magliana. (1 000 parole & fig.)

1960 **385** .114
Ingegneria Ferroviaria, marzo, p. 225.
SANTORO (F.). — Il confronto dei **costi ferroviari** attraverso il tempo. (2 000 parole.)

1960 **656** .23 (4)
Ingegneria Ferroviaria, marzo, p. 231.
TARGIA (F.). — La **collaborazione tariffaria fra le ferrovie europee** nelle possibilità attuali e nelle prospettive future. (6 000 parole & tavole.)

1960 **621** .33 (45)
Ingegneria Ferroviaria, aprile, p. 286.
PEZZI (O.). — L'**electtrificazione** della linea Mestre-Cervignano. (5 000 parole & fig.)

1960 **656** .2 (4)
Ingegneria Ferroviaria, aprile, p. 333.
SANTONI RUGIU (G.). — Alcuni problemi di attualità nel settore dei **trasporti internazionali.** (1 500 parole & tavole.)

Politica dei Trasporti. (Roma.)

1960 **656** (45)
Politica dei Trasporti, aprile, p. 177.
ROCCA (M.). — Per un **coordinamento dei trasporti terrestri italiani.** (3 000 parole.)

Trasporti Pubblici. (Roma.)

1960 **625** .42 (45)
Trasporti Pubblici, marzo, p. 315.
PIZZORNO (A.) & GORIO (L.). — La **Metropolitana di Milano** all'inizio del 1960. (3 000 parole, tavole & fig.)

1960 **385** .113 (45)
Trasporti Pubblici, marzo, p. 391.
DARD (M.). — **Un anno di attività delle Ferrovie dello Stato.** L'esercizio 1958-1959. (4 000 parole & tabelle.)

In Netherlands.

De Ingenieur. (Den Haag.)

1960 **621** .31
De Ingenieur, nr 23, 3 juni, p. E. 31.
SCHUISKY (W.). — **Sonderfälle des Kurzschlusses bei Synchronmaschinen.** (2 000 woorden & fig.)

Spoor- en Tramwagen. (Den Haag.)

1960 **625** .144 .4
Spoor- en Tramwegen, nr 6, 24 maart, p. 85.
HAUER (J.M.). — Demonstraties met **mechanisch gereedschap ten dienste van het spoorwerk.** (1 500 woorden & fig.)

1960 **385** (09 (435.9)
Spoor- en Tramwegen, nr 6, 24 maart, p. 91.
HUPKES (G.). — De **Luxemburgse Spoorwegen** in 1958. (2 000 woorden & fig.)

1960 **656** .212 (492)
Spoor- en Tramwegen, nr 7, 7 april, p. 101.
DIJKXHOORN (Th. D.). — **Nieuwe vrachtgoederenloods** te Tilburg. (1 500 woorden & fig.)

1960 **656** .225
Spoor- en Tramwegen, nr 7, 7 april, p. 104.
PENTINGA (K.J.). — **Transportbescherming bij spoorwegzendingen uit Italië.** (600 woorden & fig.)

1960 **625** .14
Spoor- en Tramwegen, nr 7, 7 april, p. 105.
HAUER (J.M.). — Verslag van de **Oberbautechnische Fachtagung** in Frankfurt (Main), 18 maart 1960. (2 000 woorden & fig.)

1960 **625** .144 .1 (492)
poor- en Tramwegen, nr 8, 21 april, p. 119.
DEENIK (J.F.). — **Voegloos spoor** in Nederland.
000 woorden & fig.)

1960 **656** .2
poor- en Tramwegen, nr 8, 21 april, p. 123.
HUPKES (G.). — **Produktiviteit en spoorwegen.**
500 woorden & fig.)

1960 **385** (09 (94)
poor- en Tramwegen, nr 8, 21 april, p. 126 en nr 11, 2 juni, p. 208.
VAN BIJNEN (J.). — De **spoorwegen van Australië.** De twee particuliere spoorwegen van Australië. Slot. 000 woorden & fig.)

1960 **625** .13
poor- en Tramwegen, nr 8, 21 april, p. 127.
Tunnelbouw. (1 000 woorden & fig.)

In Portuguese

Boletim da C.P. (Lisboa.)

1960 **625** .141
Boletim da C.P., maio, p. 2.
GAYOSA DE PENHA GARCIA (C.). — O **balastra a via** e a sua conservação. (3 000 palavras & fig.)

Gazeta dos Caminhos de ferro. (Lisboa.)

1960 **385** (09 .3 (469)
Gazeta dos Caminhos de ferro, nº 1737, 1 de Maio, p. 71; nº 1738, 16 de Maio, p. 87; nº 1739, 1 de Junho, p. 105.
DE QUADROS ABRAGÃO (F.). — No **Centenário os Caminhos de Ferro** em Portugal. Algumas notas obre a sua história. (*Continua.*) (4 000 palavras.)

In Russian (= 491.7).

Pout' I Poutyevoié Khasiaïstvo. (Moscou.)

1959 **656** .2 (47) = 491 .7
Pout' i Poutyevoié Khasiaïstvo, janvier, p. 1.
GAVRILOV (W.S.). — **Nos tâches pour le prochain plan septennal.** (1 600 mots & fig.)

1959 **625** .164 (47) = 491 .7
Pout' i Poutyevoié Khasiaïstvo, janvier, p. 10.
MYELNIK (D.M.). — Il faut modifier la **planification des dépenses dans la lutte contre la neige.** (1 400 mots & fig.)

1959 **625** .17 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, janvier, p. 17.
LAÏKO (N.W.). — **Entretien de la voie armée de longues barres posées sur traverses en béton armé.** (1 700 mots.)

1959 **625** .143 .2 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, janvier, p. 25.
LISSENKO (I.M.). — **Les chercheurs latéraux du défectoscope MRD-52.** (1 800 mots & fig.)

1959 **625** .144 .4 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, janvier, p. 31.
CHAFRANOVSKY (A.K.). — **Nivellement de la voie à l'aide de cales.** (1 000 mots & fig.)

1959 **625** .144 .4 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, février, p.12.
PAVLOV (G.I.) et CHEVAREV (V.L.). — **Réparation par levage.** (3 100 mots & fig.)

1959 **625** .151 491 .7
Pout' i Poutyevoié Khasiaïstvo, février, p. 30.
DOLININE (G.F.) et KOBRINSKY (I.I.). — Quelques observations sur les **moteurs d'aiguilles.** (800 mots & fig.)

1959 **625** .123 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, mars, p. 5.
SOBOLEVSKY (T.P.). — **Moyens de prévenir les affouillements dans les constructions.** (800 mots & fig.)

1959 **625** .14 (0 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, mars, p. 17.
BLOKHINE (K.A.). — Les **perspectives d'évolution de la superstructure de voie.** (1 900 mots.)

1959 **625** .14 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, mars, p. 24.
YERCHKOV (O.P.). — Assurons l'**élasticité uniforme de la voie.** (2 000 mots & fig.)

1959 **625** .14 (01 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, mars, p. 28.
LOU I. — La **résistance de la voie aux déplacements transversaux.** (1 700 mots & fig.)

1959 **625** .144 .4 = 491 .7
Pout' i Poutyevoié Khasiaïstvo, mars, p. 32.
LAMINE (F.G.). — Le **transport et la pose des faisceaux de longs rails.** (1 250 mots & fig.)

Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta. (Moscou.)

1959 **625** .28 (47) = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, nº 2, p. 6.
SLOMYANSKY (A.V.). — Les **types nouveaux de locomotives électriques et de locomotives Diesel** pour les grands chemins de fer en U.R.S.S. (3 400 mots.)

1959 **656** .25 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 2, p. 13.
JILTSOV (P.N.). — Les moyens de **développement de l'automaticité et de la télémécanique** ferroviaires en 1959-1965. (2 000 mots.)

1959 **656** .254 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 2, p. 17.
SOKOLOV (V.F.). — Le développement des **moyens de télécommunication** sans fil et avec fil dans le transport ferroviaire. (2 400 mots.)

1959 **621** .335 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 2, p. 26.
MEISSNER (B.A.), POPOV (A.V.) et SQUIPOURICHVILI (V.B.). — Les **caractéristiques dynamiques et de résistance des caisses des locomotives électriques à six essieux.** (3 300 mots & fig.)

1959 **621** .332 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 2, p. 32.
MIROCHNITCHENKO (P.I.). — **Possibilité de surcharge des redresseurs de sous-stations de traction.** (2 500 mots & fig.)

1959 **625** .14 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 2, p. 51.
VYERILO (M.F.). — Sur le **compactage de la couche de ballast** de la voie ferrée par une charge réitérée. (1 600 mots.)

1959 **621** .133 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 2, p. 54.
LEVYKINE (F.V.). — **Influence du dépôt des incrustations** sur le travail des parois de foyer. (1 800 mots.)

1959 **625** .17 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3, p. 3.
TCHLENOV (M.T.) — Les tâches principales dans une **mécanisation complexe des travaux de voie.** (3 400 mots.)

1959 **625** .144 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3, p. 9.
ALYOCHINE (V.A.). — Les machines du type « non démontable » pour le nettoyage du ballast et le calcul de leurs régimes de travail. (2 600 mots & fig.)

1959 **625** .14 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 16.
PYERCHINE (S.P.). — **Méthode de calcul de la stabilité** de la voie ferroviaire. (2 700 mots & fig.)

1959 **625** .151 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 20.
DANILOV (V.N.). — **Influence réciproque des wagons et des aiguilles** pendant le mouvement sur les contre-lames de l'aiguille. (800 mots.)

1959 **625** .254 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 22.
SOKOLOV (B.A.) et TARASSOV (M.F.). — Ecoulement non stationnaire et propagation des ondes de pression dans les **sytèmes de freins automatiques pneumatiques.** (3 000 mots.)

1959 **621** .431 .72 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 27.
Régulateur de puissance vibrant, système CNII pour les locomotives Diesel à transmission électrique. (3 300 mots & fig.)

1959 **621** .431 .72 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 33.
VOLODINE (A.I.). — **Economie des moteurs Diesel de locomotives** en exploitation. (3 000 mots & fig.)

1959 **621** .331 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 38.
MOTCHENOV (I.G.). — Le choix du convertisseur pour le **réglage de la tension des sous-stations de traction.** (1 600 mots & fig.)

1959 **621** .332 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 42.
KARYAKINE (R.N.). — La **réduction des oscillations de résonance dans les réseaux de traction** pendant l'alimentation des redresseurs de locomotives électriques. (2 100 mots & fig.)

1959 **656** .25 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 3
p. 49.
POUCHKARYEV (B.N.). — **Circuits de voie** avec nouveaux récepteurs pour le cas de voies uniques. (2 500 mots & fig.)

In Swedish. (= 439 .71.)

Järnvägs-Teknik. (Stockholm.)

1960 **625** .113 = 439 .71
Järnvägs-Teknik, nº 3, p. 53.
ZACCO (F.). — **Rectification du tracé de la voie par la méthode au cordeau.** II. (2 000 mots & fig.)

1960 **725** .31 (485) = 439 .71
Järnvägs-Teknik, nº 3, p. 64.
LANDSTRÖM (S.). — **Bâtiments de gares en éléments préfabriqués.** (1 500 mots & fig.)

In Czech (= 91.886).

Doprava. (Prague.)

1959 **656** (437) = 91 .886
Doprava, janvier, p. 2.
VLASAK (F.). — Les perspectives du **développement des transports** en Tchécoslovaquie. (2 200 mots.)

1959 **621** .3 = 91 .886
Doprava, janvier, p. 8.
KUSTOVA (O.). — Introduirons-nous la **cybernétique dans les transports ?** (2 200 mots.)

1959 **621** .3 = 91 .886
Doprava, janvier, p. 64.
SLECHTA (J.). — La possibilité d'emploi des **calculatrices électroniques** dans les chemins de fer. (2 200 mots.)

Elektrotechnický Obzor. (Prague.)

1959 **621** .31 = 91 .886
Elektrotechnický Obzor, p. 11.
ZAPLETAL (M.). — La **protection des câbles** d'énergie, de télécommunication et d'introduction dans les installations annexées aux postes de transformation à très haute tension. (2 500 mots & fig.)

Železnični doprava a technika. (Prague.)

1959 **621** .431 .72 = 91 .886
Železnični doprava a technika, janvier, p. 8.
MARECEK (J.) et MÜLLER (J.). — La **construction de l'autorail M.131.1 du point de vue de l'entretien.** (1 800 mots & fig.)

1959 **621** .431 .72 = 91 .886
Železnični doprava a technika, janvier, p. 15.
PAVEL (A.). — **Boîtes d'engrenage sur les essieux d'autorails.** (2 400 mots & fig.)

1959 **625** .13 = 91 .886
Železnični doprava a technika, janvier, p. 18.
TISCHER (J.) et VIHAN (J.). — Essais de ciment ductile dans le **bétonnage des voûtes de tunnels.** (2 600 mots & fig.)

1959 **621** .431 .72 = 91 .886
Železnični doprava a technika, janvier, p. 22.
KLÉZL (Z.). — L'**emploi de cardans** dans les locomotives et autorails. (2 700 mots & fig.)

1959 **625** .212 = 91 .886
Železnični doprava a technika, janvier, p. 26.
STEJSKAL (V.). — **Importance d'un serrage avec tension convenable des bandages sur les roues.** (2 400 mots & fig.)

1959 **621** .33 = 91 .886
Železnični doprava a technika, février, p. 35.
DUFEK (F.). — **Nouvelles machines de chantier pour lignes électrifiées.** (2 200 mots & fig.)

1959 **621** .332 = 91 .886
Železnični doprava a technika, février, p. 40.
NÉMEC (J.). — **Joints de caténaires.** (5 200 mots & fig.)

1959 **691** = 91 .886
Železnični doprava a technika, février, p. 60.
ZÁK (J.). — **Les « Anticoroprènes » et leur emploi dans la protection des installations en fer.** (2 200 mots.)

1959 **656** .2 = 91 .886
Železnični doprava a technika, mars, p. 67.
BARTIK (V.). — Prévisions techniques dans l'**organisation nouvelle d'une direction d'exploitation de transport.** (1 700 mots.)

1959 **656** .223 .2 = 91 .886
Železnični doprava a technika, mars, p. 69.
PASTOR (K.). — Les **parcours de wagons** et l'intérêt matériel de l'administration ferroviaire. (1 150 mots.)

M. Weissenbruch & Co., Ltd., Printer to the King, 49, rue du Poinçon, Bruxelles.

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016. 385 (02]

I. — BOOKS.

In French.

960 625 .142 (44)
Déraillements et Traverses S.N.C.F.-R.S.
Uzès (Gard), Ateliers Henri Peladan. Une brochure × 24 cm) de 24 pages, abondamment illustrée. x: 3 NF.)

960 621 .33 (02
RREAU (M.).
Cours de traction électrique.
aris (2e), Editions Scientifiques Riber, 117, boulevard astopol. Un volume (21 × 31 cm), broché de 443 es. (Prix: 40 NF.)

960 531
MINARD (L.) et GIET (A.).
Mécanique appliquée. *Tome II;* Thermodynamique.
aris, Dunod, éditeur, 92, rue Bonaparte. Un volume × 25 cm) de 278 pages avec de nombreuses figures. x, broché, 12 NF.)

In German.

960 656 .254
lsners Taschenbuch für den fernmeldetechnischen nbahndienst. 10. Band 1960. Herausgeber: W. Leitenger.
rankfurt (Main) und Berlin-Zehlendorf, Dr. Arthur zlaff-Verlag. 222 Seiten DIN A6 mit 107 Bildern. is: DM 4.20; Vorzugspreis für Bedienstete der DB, 3.80.)

960 621 .039
SSL.
robleme der Zugförderung im Zusammenhang mit Ausnützung der Atom-Energie.
pladen, Westdeutscher Verlag, Ophovenerstrasse 1-3. Seiten, DIN A4. (Preis: kart. DM 29.90.)

960 721 .1
RENZ (H.).
rundbau-Dynamik.
erlin-Göttingen-Heidelberg, Springer-Verlag. 308 Sei- (16 × 24 cm) mit 302 Abbildungen. (Preis: DM 46.50.)

In English.

1960 62 (01
RAMANUJAM (S.).
Corrosion and its prevention.
One volume (9 1/2 × 6 1/4 in.) of 168 pages.
Lucknow (India): Railway Testing & Research Centre, Indian Ministry of Railways. (No price stated.)

1960 385 .3 (08 (5)
State Railway of Thailand. Annual Report for the year Bhuddhist Era 2499, with balance sheets, working accounts and profit & loss account.
Printed and published by Nai Niyom Phojana at the State Railway of Thailand Printing Office, Bangkok. (No price stated.)

1960 385 .58
TAYLOR (M.).
Railways as a career.
One volume (7 1/2 × 5 in.) of 128 pages.
London: B.T. Batsford Limited, 4, Fitzhardinge Street, Portman Square, W1. (Price: 12 s. 6 d.)

1960 621 .132 (09
The concise Encyclopaedia of World Railway Locomotives.
Edited by P. Ransome-Wallis.
One volume (10 × 7 1/2 in.) of 512 pages.
London: Hutchinson & Co. (Publishers) Ltd., 178-202, Great Portland Street, W.1. (Price: 50 s.)

In Spanish.

1960 625 .142
SONNEVILLE (R.).
La modernización de la via. ¿ Durmiente de concreto o durmiente de madera ? (*Avec traduction française.*)
Uzès (Gard), Ateliers Henri Peladan. Folleto (16 × 24 cm) de 38 paginas con 21 figuras.

(1) The numbers placed over the title of each book are those of the decimal classification proposed by the Railway Congress ointly with the Office Bibliographique International, of Brussels, (See « Bibliographical Decimal Classification as applied to Railway ce », by L. WEISSENBRUCH, in the number for November 1897, of the *Bulletin of the International Railway Congress* p. 1509).

[016 .385 (05]

II. — PERIODICALS.

In French.

Annales des Travaux Publics de Belgique. (Bruxelles.)

1959/1960 **691**

Annales des Travaux Publics de Belgique, n° 6, décembre, p. 553.

LOUW (C.J.). — Sur le **calcul à la rupture des structures en béton armé.** (2 000 mots & fig.)

Bulletin de l'Association Suisse des Electriciens. (Zürich.)

1960 **621** .331

Bulletin de l'Association Suisse des Electriciens, 18 juin, p. 595.

DEGEN (A.). — Die **verschiedenen Arten elektrischer Zugförderung** bei den Schweizerischen Bundesbahnen seit ihren Anfängen. (7 000 mots & fig.)

Bulletin de Documentation S.C.E.T.A. (Paris.)

1960 **656** .225 (73)

Bulletin de Documentation S.C.E.T.A., juin, p. 9.

Le point de vue des expéditeurs américains sur le « Piggyback ». (1 500 mots.)

Bulletin d'information C.I.C.E. (Rome.)

1960 **388** (44)

Bulletin d'information C.I.C.E., avril, p. 10.

La modernisation des transports de la Région Parisienne. (1 000 mots & fig.)

Bulletin scientifique de l'Association des Ingénieurs électriciens sortis de l'Institut Electrotechnique Montefiore. (Liège.)

1960 **621** .318

Bull. scient. de l'Assoc. des Ing. électr. sortis de l'Institut Electrotechnique Montefiore, février-mars, p. 143.

RINGLET (P.). — Caractéristiques et performances des **amplificateurs magnétiques.** (8 400 mots & fig.)

Bulletin de la Société Française des Electriciens. (Paris.)

1960 **621** .315

Bulletin de la Soc. Française des Electriciens, avril, p. 200.

LE VERRE (P.). — Les **surtensions** lors de l'élimination de courts-circuits sur les réseaux dont le neutre est mis à la terre par une réactance. (12 000 mots & fig.)

1960 **621** .3

Bulletin de la Soc. Française des Electriciens, avril, p. 22

BOUSCASSE (J.). — **Relais et ensembles statiques à transistrons.** (8 700 mots & fig.)

1960 **621** .3

Bulletin de la Soc. Française des Electriciens, avril, p. 24

HETIER (J.-L.). — Les **relais à amplificateurs magnétiques.** (3 700 mots & fig.)

1960 **621** .33 (4

Bulletin de la Soc. Française des Electriciens, mai, p. 32

NOUVION. — Où en est la **traction électrique** en France. Son évolution prochaine. Son rayonnement dans le monde. (7 500 mots & fig.)

1960 **621** .3

Bulletin de la Soc. Française des Electriciens, mai, p. 32

WILLEMS (P.) et LHEUREUX (R.). — La **commande asservie de moteurs à courant continu** alimentés par des groupes transformateurs-redresseurs à l'aide d'équipements statiques. (1 500 mots & fig.)

Bulletin technique de la Suisse Romande. (Lausanne.)

1960 **621** .

Bull. techn. de la Suisse Romande, 18 juin, p. 242.

Le disjoncteur et son fonctionnement dans le cas particulier d'un court-circuit de réseau. (1 000 mots & fig.)

Bulletin de l'Union Internationale des Chemins de fer. (Paris.)

1960 **385** (09 (3) & **385** .113 (

Bull. de l'Union Intern. des Chemins de fer, mai, p. 14

Les Chemins de fer en 1959. Algérie. Congo Belge. Espagne. Maroc. Pays-Bas. (5 000 mots & tableaux.)

1960 **385** (09 (3) & **385** .113 (

Bull. de l'Union Intern. des Chemins de fer, juin, p. 17

Les Chemins de fer en 1959. Grande-Bretagne. Italie. (5 000 mots & tableaux.)

Génie Civil. (Paris.)

1960 **6**

Génie Civil, n° 3518, 15 juin, p. 271.

COÜARD (A.). — **Fluage, flèches, fissuration du béton armé à l'effort tranchant.** Essai de détermination de la distribution des étriers. (2 000 mots & fig.)

Industrie des Voies ferrées et des Transports automobiles. (Paris.)

1960 **625** .62 (493)
ndustrie des Voies ferrées et des Transports automobiles, mai, p. 85.
REYNAERT. — **Note de la Société des Transports ercommunaux de Bruxelles sur les services du Dis-ching** (Exploitation) et Centre de commande du Ser-e Electrique. (2 000 mots & fig.)

émoires de la Société des Ingénieurs Civils de France. (Paris.)

1960 **621** .3
emoires de la Soc. des Ing. Civils de France, juin, p. 17.
MORESSÉE (G.). — **De la roue de Barlow aux ma-nes électriques à entrefer axial et bobinages lamellaires.** 000 mots, tableaux & fig.)

Rail et Traction. (Bruxelles.)

1960 **625** .282 (493)
il et Traction, mars-avril, p. 79.
VAN GEEL (P.). — Les **futures locomotives Diesel** la S.N.C.B. (1 500 mots & tableau.)

1960 **385** (09 (42)
il et Traction, mars-avril, p. 87.
VAN GEEL (P.). — La **modernisation des Chemins fer Britanniques.** (*Suite et fin.*) (5 000 mots, tableaux, ig.)

1960 **625** .162 (493)
il et Traction, mars-avril, p. 119.
Passage à niveau à demi-barrières à la S.N.C.B. 0 mots & fig.)

1960 **625** .282 (82)
l et Traction, mars-avril, p. 121.
Locomotives Diesel-électriques de ligne pour l'Argen-. (2 000 mots & fig.)

Revue ACEC. (Charleroi.)

1960 **621** .335
vue ACEC, n° 1, p. 2.
MIGNON (G.) & LAMBERTS (P.). — Les **locomo-s à ignitrons-redresseurs type 2300** du B.C.K. (5 200 ts & fig.)

1960 **621** .315
vue ACEC, n° 1, p. 21.
DELEVOY (V.), CASSALETTE (F.) et GUIL-UME (A.). — Les **résines « Epoxydes » dans l'appa-age à haute tension.** (3 000 mots & fig.)

vue Générale des Chemins de fer. (Paris.)

1960 **656** .223
vue Générale des Chemins de fer, juin, p. 317.
ONDON (G.). — Le **marquage uniforme des wagons marchandises.** (1 500 mots.)

1960 **625** .23 (44)
Revue Générale des Chemins de fer, juin, p. 321.
MASSERAN. — La **modernisation des voitures B10ty** à portières latérales. (3 000 mots & fig.)

1960 **385** (09 (47)
Revue Générale des Chemins de fer, juin, p. 333.
Les **Chemins de fer de l'U.R.S.S.** (12 000 mots, tableaux & fig.)

1960 **621** .33
Revue Générale des Chemins de fer, juin, p. 363.
Développement des différents **systèmes de traction électrique.** (3 000 mots & fig.)

Revue Générale de Mécanique-Electricité. (Paris.)

1960 **621** .392
Revue Générale de Mécanique-Electricité, mars, p. 105.
OGUS (A.). — **Accélération des productions avec l'automatisation de la soudure par points.** (3 000 mots, tableaux & fig.)

1960 **621** .3
Revue Générale de Mécanique-Electricité, mars, p. 119.
Les **redresseurs de puissance** dans l'industrie. (3 000 mots & fig.)

1960 **625** .4 (44)
Revue Générale de Mécanique-Electricité, mars, p. 137.
Le **métro aérien suspendu.** (1 300 mots & fig.)

Revue Générale des Transports et Communications. (Bruxelles.)

1960 **385** (09 (497 .2)
Revue Générale des Transports et Communications, février-mars, p. 3.
Les **transports en Bulgarie.** (1 500 mots & fig.)

1960 **656** .22 (493)
Revue Générale des Transports et Communications, février-mars, p. 7.
LOMBARD (A.). — Considérations sur l'**exploitation de la Jonction ferroviaire Nord-Midi** et de la Gare Centrale. (4 000 mots & fig.)

1960 **656** (4)
Revue Générale des Transports et Communications, juin, p. 5.
DOUSSET (J.). — Le **problème des transports dans le cadre de la Communauté Economique Européenne.** (*A suivre.*) (2 000 mots.)

1960 **621** .33 (493)
Revue Générale des Transports et Communications, juin, p. 11.
Inauguration de la ligne électrique Landen-Hasselt. 28 mai 1960. (800 mots.)

La Traction Electrique dans les Chemins de fer. (Bruxelles.)

1960 **621** .314
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 5, mai, p. 219.
HILSENBECK (K.). — Fonctionnement des transducteurs, redresseurs à semi-conducteurs et transistrons. (8 500 mots & fig.)

1960 **621** .314
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 5, mai, p. 241.
SCHUISKY (W.). — Détermination de l'échauffement des **machines électriques** et des **transformateurs** au moyen du réseau thermique. (5 200 mots & fig.)

1960 **621** .351
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 5, mai, p. 253.
LIEBHAFSKY (H.A.) et DOUGLAS (D.L.). — La pile à combustible. (3 100 mots & fig.)

1960 **621** .431 .72 (47)
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 5, mai, p. 263.
Locomotive Diesel-électrique marchandises russe de 3 000 ch. (1 650 mots & fig.)

1960 **621** .431 .72
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 5, mai, p. 269.
La détection du **patinage** et de l'**enrayage** des roues. (1 800 mots & fig.)

Les Transports Publics. (Berne.)

1960 **656** .2
Les Transports Publics, juin, p. 3.
BUCHLI (P.). — **Pour se faire respecter... Il faut savoir lutter!** (1 200 mots.)

1960 **625** .24 (494)
Les Transports Publics, juin, p. 4.
Rationalisation dans la construction des wagons. (800 mots.)

La Vie du Rail. (Paris.)

1960 **621** .335 (44)
La Vie du Rail, 1er mai, p. 13.
Les **locomotives BB-9400 à 1500 V continu.** (5 000 mots & fig.)

1960 **625** .13 (44)
La Vie du Rail, 8 mai, p. 16.
Réparations d'ouvrages d'art dans la région de Mulhouse. (500 mots & fig.)

1960 **385** (09 (931)
La Vie du Rail, 15 mai, p. 16.
Modernisation des chemins de fer en Nouvelle-Zélande. (1 200 mots & fig.)

1960 **621** .33 (44
La Vie du Rail, 22 mai, p. 3.
GRANDBASTIEN (J.). — **Travaux d'électrificatio** à Lunéville. (800 mots & fig.).

1960 **621** .33 (43
La Vie du Rail, 29 mai, p. 5.
Electrification en Sarre. Sarrebrück-Hombourg inau guré. (800 mots & fig.)

1960 **625** .245 (44
La Vie du Rail, 29 mai, p. 7.
Wagons spécialisés à parois coulissantes EVS. (1 00 mots & fig.)

1960 **625** .245 (44
La Vie du Rail, 5 juin, p. 8.
BRUGEAT (J.). — Le **transport des automobiles pa wagon spécialisé.** (500 mots & fig.)

1960 **385** (07 (44
La Vie du Rail, 5 juin, p. 18.
Le **centre de formation du personnel** à Louvres. (2 00 mots & fig.)

1960 **625** .23
La Vie du Rail, 26 juin, p. 13.
Un **équipement générateur sans contacts mobiles pou l'éclairage des voitures de chemin de fer.** (600 mots & fig

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1960 **656** .211 (51
La Vie du Rail, 3 juillet, p. 4.
CHI YEN-LANG. — La **nouvelle gare** de Pékin (700 mots & fig.)

1960 **656** .222 .5 (48
La Vie du Rail, 3 juillet, p. 6.
Le nouveau **train-navette de la banlieue de Stockholm** (500 mots & fig.)

1960 **621** .431 .72 (6
La Vie du Rail, 3 juillet, p. 22.
LERAY (J.). — La **dieselisation** sur le Congo-Océa (1 000 mots & fig.)

In German.

Archiv für Eisenbahnwesen. (Berlin.)

1960 **656** (5
Archiv für Eisenbahnwesen, Heft 2, S. 209.
WEHDE-TEXTOR. — **Industrialisierung und Verkeh** in China. (8 000 Wörter.)

1960 **347** .763 .4 (4
Archiv für Eisenbahnwesen. Heft 2, S. 225.
Aktuelle Probleme des Eisenbahnrechts.
I. **Planfeststellung und Enteignung,** von Th. KITTEL (1 200 Wörter.)
II. **Bundesbahnautonomie und Grundgesetz,** von G FROMM. (3 000 Wörter.)
III. **Sind Bahneinheit und Bahngrundbuch heute noc zu rechtfertigen?** von H. HELDMANN. (3 000 Wörter

Die Bundesbahn. (Darmstadt und Köln.)

1960 **656** .21
ie Bundesbahn, Nr 8, April, S. 355.
PREISER (G.). — **Rationalisierung und Schliessung n Bahnhöfen und Abfertigungen.** (5 000 Wörter & Abb.)

1960 **656** .223 .2
ie Bundesbahn, Nr 8, April, S. 367.
WAGLER (H.). — **Neues Verfahren der Güterwagen-rkehrsstromzählung.** (3 500 Wörter & Abb.)

1960 **351** .812
ie Bundesbahn, Nr 9, Mai, S. 429.
FISCHER (W.). — Die **Haftung der Bediensteten** bei sonders gefahrbehafteter Tätigkeit. (2 000 Wörter.)

1960 **625** .1 (43 + 48)
ie Bundesbahn, Nr 9, Mai, S. 442.
ZEMKE (U.). — « **Vogelfluglinie** » **voll im Bau.** 200 Wörter & Abb.)

1960 **656**
ie Bundesbahn, Nr 10, Mai, S. 471.
HOFFMANN (E.). — **Zur Frage der Einbeziehung s Pipeline-Transports in die bestehende Verkehrsord-ng.** (4 000 Wörter.)

1960 **656**
ie Bundesbahn, Nr 10, Mai, S. 479.
EFFMERT (W.). — **Betriebswirtschaft im Verkehr.** 0 000 Wörter & Abb.)

1960 **625** .112
ie Bundesbahn, Nr 10, Mai, S. 511.
BRANDT (K.H.) und BERG (H.). — Über das **roblem des Spurwechsels bei den europäischen Eisen-hnen.** (4 000 Wörter & Abb.)

er Eisenbahningenieur. (Frankfurt am Main.)

1960 **621** .87 (43)
er Eisenbahningenieur, Mai, S. 139.
LIEBING (K.E.). — **Kranwagen** der Deutschen Bun-sbahn. (2 000 Wörter & Abb.)

1960 **625** .2
er Eisenbahningenieur, Mai, S. 144.
ZBORALSKI (D.). — Die **Isolation von Fahrzeug-inden** gegen Wärme, Schall und Korrosion. (4 000 örter & Abb.)

1960 **625** .1 : **621** . 33 (43)
er Eisenbahningenieur, Mai, S. 150.
BOSCH (O.). — **Bautechnische Aufgaben bei der Elek-fizierung** der Nord-Süd-Strecke. (3 000 Wörter & Abb.)

1960 **625** .12
er Eisenbahningenieur, Mai, S. 157.
BETHÄUSER (A.). — **Planumsverbesserung durch denstabilisierung mit Kalk.** (2 500 Wörter & Abb.)

1960 **625** .17
er Eisenbahningenieur, Mai, S. 162.
TAUTENHAHN (A.). — Die **chemische Gleisent-autung.** (3 000 Wörter & Abb.)

Deutsche Eisenbahntechnik. (Berlin.)

1960 **656** .25
Deutsche Eisenbahntechnik, Mai, S. 187.
REHMET (J.). — Der **absolute Haltbegriff der Haupt-signale.** (5 000 Wörter, Tafeln & Abb.)

1960 **656** .22
Deutsche Eisenbahntechnik, Mai, S. 195.
STEJSKAL (J.). — Neues zeichnerisches Verfahren für die **Integration der Zugbewegungsgleichung.** (2 000 Wörter, Tafeln & Abb.)

1960 **656** .212 .5
Deutsche Eisenbahntechnik, Mai, S. 199.
GEISSLER (G.). — Der **Beidrückwagen System Dolabaridse.** (800 Wörter & Abb.)

1960 **656** .221
Deutsche Eisenbahntechnik, Mai, S. 201.
SCHMID (K.). — Nomogramm zur **Ermittlung der Schlepplasten.** (900 Wörter & Abb.)

1960 **625** .282 (47)
Deutsche Eisenbahntechnik, Mai, S. 210.
BÜTTNER (S.). — **Schwere dieselhydraulische Rangierlokomotive** für die UdSSR. (1 000 Wörter & Abb.)

1960 **625** .617
Deutsche Eisenbahntechnik, Mai, S. 213.
SCHÜLER (A.). — Zur Entwicklung der **Spurwechsel-radsätze.** (9 000 Wörter & Abb.)

1960 **625** .23
Deutsche Eisenbahntechnik, Mai, S. 220.
NÜSKEN (F.). — Einige **konstruktive Probleme des Doppelstock-Gliederzuges.** (3 000 Wörter & Abb.)

1960 **625** .22
Deutsche Eisenbahntechnik, Mai, S. 224.
KNOBLOCH (E.). — Die **Überleitung verschieden grosser Lichtraumbreiten im Übergangsbogen** für die neue Umgrenzungslinie 1-SM/DR. (3 000 Wörter & Abb.)

E.T.R.-Eisenbahntechnische Rundschau. (Köln-Darmstadt.)

1960 **625** .26 (43)
Eisenbahntechnische Rundschau, April, S. 148.
SCHÖFFEL (E.). — Das **Metallspritzen in den Aus-besserungswerken** der D.B. (6 000 Wörter & Abb.)

1960 **656** .212 .6
Eisenbahntechnische Rundschau, April, S. 158.
KITTEL (W.) & SEILS (A.). — **Lastannahmen und Vergleichs-Gleichlasten für die Bemessung baulicher Anlagen** bei Verwendung mechanischer Lademittel wie Gabelstapler und Elektroschlepper. (3 000 Wörter, Tafeln & Abb.)

1960 **625** .2
Eisenbahntechnische Rundschau, April, S. 165.
ZBORALSKI (D.). — **Lautstärkemass und Schall-empfindung bei Eisenbahngeräuschen.** Bemühungen um empfindungsrichtigere Erfassung der Lärmepegel. (8 000 Wörter & Abb.)

1960 **625** .245 (43)
Eisenbahntechnische Rundschau, April, S. 176.
BIERMANN (H.). — Eine **neue doppelstöckige Kraftfahrzeug-Transporteinheit.** (3 000 Wörter & Abb.)

1960 **625** .14 (01
Eisenbahntechnische Rundschau, April, S. 183.
SAUSEN (F.) und SCHNEPPENDAHL (G.). — Rechnerisches Verfahren zur **Ermittlung der Biegesteifigkeit von Gleisjochen.** (3 000 Wörter, Tafeln & Abb.)

1960 **621** .33 (43)
Eisenbahntechnische Rundschau, April, S. 188.
Elektrifizierung bei der Deutschen Reichsbahn. (1 500 Wörter & Karte.)

1960 **624** (43)
Eisenbahntechnische Rundschau, Mai, S. 191.
LEMMERHOLD (F.). — **Ergebnis des Bauwettbewerbs « Fehmarnsund-Brücke ».** (5 000 Wörter, Tafeln & Abb.)

1960 **625** .27 (43)
Eisenbahntechnische Rundschau, Mai, S. 202.
ROTH (P.). — Der **Einfluss der technischen Entwicklung der Deutschen Bundesbahn auf ihren Stoffverbrauch.** (2 500 Wörter, Tafeln & Abb.)

1960 **621** .132 .8 (43)
Eisenbahntechnische Rundschau, Mai, S. 206.
WITTE (F.). — **Untersuchung der DB-Dampflokomotive 50 4011 mit Franco-Crosti-Kessel, Mischvorwärmer und Ölfeuerung.** (3 000 Wörter & Abb.)

1960 **385** (07 .2 (43) & **531** (43)
Eisenbahntechnische Rundschau, Mai, S. 215.
ZOTTMANN (W.). — **Einsatz elektronischer Geräte zur Messung mechanischer Grössen** in der Mechanischen Abteilung der Bundesbahn-Versuchsanstalt München. (5 000 Wörter & Abb.)

1960 **625** .1 (43)
Eisenbahntechnische Rundschau, Mai, S. 226.
Einfahren einer massiven **Wegunterführung.** (1 000 Wörter & Abb.)

Elektrische Bahnen. (München.)

1960 **621** .335 (494)
Elektrische Bahnen, Heft 5, S. 97.
WEBER (H). — Die **Zweifrequenz-Rangierlokomotiven** der SBB. (7 500 Wörter & Abb.)

1960 **621** .332
Elektrische Bahnen, Heft 5, S. 110.
WAGNER (R.). — **Systemwechselbahnhof** Überherrn. (2 000 Wörter & Abb.)

Elektrotechnik und Maschinenbau. (Wien.)

1960 **621** .319
Elektrotechnik und Maschinenbau, 1. Juni, S. 254.
STEPHANIDES (H.). — Gesetzmässigkeiten und Ursachen der **Schwingungen in Kondensatoren bei Stossentladungen und hochfrequenten Strömen.** (9 000 Wörter & Abb.)

1960 **621** .31
Elektrotechnik und Maschinenbau, 15. Juni, S. 377.
BODUROGLU (T.). — Einfluss der Höhe auf di örtliche und mittlere **Wärmebelastbarkeit der Wicklungs oberfläche von Lufttransformatoren auf Grund von Modell versuchen.** (9 200 Wörter & Abb.)

1960 **621** .31
Elektrotechnik und Maschinenbau, Juni, S. 288.
OBERDORFER (G.). — Zum Oerstedt und de anderen **magnetischen Dreiereinheiten.** (4 700 Wörte & Abb.)

E.T.Z. Elektrotechnische Zeitschrift. (Berlin.)

1960 **621** .31
E.T.Z., 13. Juni, S. 392.
HOCHHÄUSLER (P.). — **Lebensdauer-Verlängerun von Wechselspannungs-Kondensatoren.** (3 000 Wörte & Abb.)

1960 **621** .31
E.T.Z., 13. Juni, S. 295.
RENSCH (H.). — Der **hermetisch abgeschlossen Kontakt « Herkon ».** (1 800 Wörter & Abb.)

1960 **621** .31
E.T.Z., 13. Juni, S. 309.
KEIL (A.) und MEYER (C.-L.). — Die **mechanisch Deformation von Kontaktstücken durch den Schaltlicht bogen.** (2 300 Wörter & Abb.)

1960 **621** .31
E.T.Z., 13. Juni, S. 311.
BECKER (K.). — Über die **Beschädigung kunststoff isolierter Leitungen durch Nagetiere.** (3 400 Wörte & Abb.)

Glasers Annalen. (Berlin.)

1960 **388** & **625** .4
Glasers Annalen, Mai, S. 149.
FRIEBE (H.). — **Nahverkehrsprobleme der Zukunft** (3 000 Wörter & Abb.)

1960 **621** .3
Glasers Annalen, Mai, S. 156.
HILSENBECK (K.). — Grundlagen der **Anwendung von Transduktoren und Transistoren.** (5 000 Wörte & Abb.)

1960 **621** .338 (469
Glasers Annalen, Mai, S. 165.
JUSTO (J.), GENDREAU (J.) und KNECHT (H.) — **Der wagenbauliche Teil der dreiteiligen Triebzüge Baureihe 2000** für Einphasen-Wechselstrom 50 Hz 25 kV der Companhia dos Caminhos de Ferro Portugueses. (4 000 Wörter & Abb.)

1960 **621** .131 .2
Glasers Annalen, Mai, S. 171.
BORGEAUD (G.). — **Geometrische und mechanische Zusammenhänge bei der Kastenabstützung einer Drehgestell-Lokomotive.** (6 000 Wörter & Abb.)

1960 **621** .335 (494)
asers Annalen, Mai, S. 181.
Die **Doppel-Lokomotive Reihe Ae 8/8** der Berner benbahn. (1 000 Wörter & Abb.)

Leichtbau der Verkehrsfahrzeuge. (Frankfurt/Main.)

1960 **625** .2 (73)
chtbau der Verkehrsfahrzeuge, Mai-Juni, S. 118.
TASCHINGER (O.). — Der **Leichtbau der Schienenrzeuge in den U.S.A.** (*Schluss.*) (12 000 Wörter, bellen & Abb.)

1960 **625** .2 (54)
chtbau der Verkehrsfahrzeuge, Mai-Juni, S. 138.
MUNK (K.H.). — **Die « Indian Railways » und ihr zeitlicher Fahrzeugbau.** (7 000 Wörter, Karte & Abb.)

Der Öffentliche Verkehr. (Bern.)

1960 **625** .162 (494)
r Öffentliche Verkehr, Juni, S. 4.
Die **Sanierung der Niveau-Übergänge.** (900 Wörter.)

1960 **625** .24 (494)
r Öffentliche Verkehr, Juni, S. 6.
Die **Rationalisierung beim Güterwagenbau.** (1 000 rter & Abb.)

Siemens-Zeitschrift. (Berlin.)

1960 **621** .313
mens-Zeitschrift, Juni, S. 348.
VICHMANN (A.). — Prüfverfahren und Erfahrungen der **Überwachung der Hochspannungsisolation elekcher Maschinen** im Betrieb. (4 200 Wörter & Abb.)

1960 **621** .314
mens-Zeitschrift, Juni, S. 372.
DIETRICH (W.) und KLOTZ (H.). — **Transformanberechnung auf Digitalrechenmaschinen.** (5 000 Wör- & Abb.)

Signal und Draht. (Frankfurt/Main.)

1960 **656** .222 .4
nal und Draht, Mai, S. 85.
IMMER (G.). — **Bahngestaltung aus dem Fahrplan.** 00 Wörter & Abb.)

1960 **625** .142 .4
nal und Draht, Mai, S. 91.
Viderstandsregistriergerät für Stahlbetonschwellen. (700 rter & Abb.)

1960 **625** .214
nal und Draht, Mai, S. 92.
VOLTERSDORF (F.-W.). — **Heissläufermeldegerät** art Siemens & Halske AG. (2 500 Wörter & Abb.)

1960 **625** .214 (73)
Signal und Draht, Mai, S. 95.
HENNIG (W.). — **Heissläufermeldegerät** bei den Amerikanischen Eisenbahnen. (2 000 Wörter & Abb.)

1960 **656** .256 .3 (43)
Signal und Draht, Juni, S. 101.
MARFELS (H.). — **Selbstgestellte Abzweigstelle** bei der Hamburger S-Bahn. (3 000 Wörter & Abb.)

1960 **656** .257
Signal und Draht, Juni, S. 107.
GEBER (W.). — Die **automatische Funktionsprüfung bei Gleisbildstellwerken.** (3 000 Wörter & Abb.)

In English.

British Transport Review. (London.)

1960 **656** .2
British Transport Review, April, No. 6, p. 475.
STRINGER (J.). — **Operational research and management.** (18 pages illustrated.)

1960 **656** .2
British Transport Review, April, No. 6, p. 493.
The obligation to carry (*to be continued*). (11 pages.)

1960 **385** .58
British Transport Review, April, No. 6, p. 512.
MERRILL (E.). — **Keeping the staff informed.** (9 pages.)

1960 **635 & 656** .2
British Transport Review, April, No. 6, p. 535.
LÉVI (R) and MARTIN (C.). — **The role of electronics in railway operation. — II.** (9 pages.)

Electrical Engineering. (New York.)

1960 **621** .33
Electrical Engineering, May, p. 394.
CURTIS (L.B.). — **Economic trends make railroad electrification inevitable.** (3 000 words.)

Electric Traction on the Railways. (Brussels.)

1960 **625** .335
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 5, May, p. 211.
KILB (E.). — The light weight construction of 16 2/3 c.s. **electric locomotives** being an excellent method of rationalising their design and lowering their construction and operating costs. (7 750 words & fig.)

1960 **621** .337
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 5, May, p. 230.
GERMANIER (R.). — An automatic **control system** using a transductor for starting vehicles driven by alternating current motors. (5 800 words & fig.)

1960 **621** .332 (45)
Bulletin of the International Railway Congress Association. — Electric Traction on the Railways, No. 5, May, p. 245.
PASCUCCI (L.). — Economic spacing of the **convertor substations** on the 3 000 V D.C. electrified lines of the Italian State Railways. (3 800 words & fig.)

The Engineer. (London.)

1960 **385** (09 (494)
The Engineer, April 22, p. 697.
Transport and Communications Museum. (2 200 words & figs.)

1960 **625** .13
The Engineer, April 29, p. 718.
The Channel Tunnel report. (2 400 words.)

1960 **625** .4 (44)
The Engineer, April 29, p. 755.
French suspension railway. (4 800 words & figs.)

1960 **621** .335 (54)
The Engineer, May 6, p. 783.
British Railways A.C. locomotives. (1 800 words & figs.)

1960 **621** .335 (44)
The Engineer, May 6, p. 798.
French mixed-traffic locomotives. (1 000 words & fig.)

Indian Railways. (New Delhi.)

1960 **621** .431 .72
Indian Railways, Annual, April, p. 193.
RIGAUX (J.). — **Scientific maintenance of Diesel locomotives leads to economical operation.** (1 300 words & figs.)

1960 **656** .2 (54)
Indian Railways, Annual, April, p. 249.
SAXENA (K.K.). — **Operational efficiency of Indian Railways : an objective study.** (3 000 words & figs.)

1960 **656** .25 (42)
Indian Railways, Annual, June, p. 411.
TOWERS (H.C.). — **British Railway signalling being progressively modernised.** (2 000 words & figs.)

Journal of the Institution of Electrical Engineers (London.)

1960 **621** .3
Journal of the Institution of Electrical Engineers, April p. 221.
Lightning protection of overhead lines. (700 word & figs.)

Mechanical Engineering. (New York.)

1960 **656** .212 .
Mechanical Engineering, May, p. 67.
FOOTLIK (I.M.). — **Warehousing without pallets** (1 800 words & figs.)

Modern Railroads. (Chicago.)

1960 **621** .431 .72 (73
Modern Railroads, May, p. 86.
I. The new look in railroad shops. — II. How railroad shops boost productivity. — III. Stress new techniques, tools. — IV. Railroads reappraise shop concepts. — V. How adequate is car maintenance VI. What's ahead ? (6 000 words & figs.)

1960 **625** .142 .4 (73
Modern Railroads, May, p. 124.
Traffic rolls on concrete ties. (1 300 words & figs.

1960 **621** .431 .72 (73
Modern Railroads, June, p. 70.
G-E builds " New Concept " Diesel. (2 800 word & figs.)

1960 **656** .225 (73
Modern Railroads, June, p. 127.
Coordinated transport " package ". (600 words & fig.

Modern Transport. (London.)

1960 **625** .1
Modern Transport, April 16, p. 3.
Channel bridge scheme. (1 200 words & figs.)

1960 **656** .212 .5 (42
Modern Transport, April 16, p. 3; May 7, p. 11 May 28, p. 15.
New W.R. marshalling yard at Margam. (4 500 word & figs.)

1960 **624** .8 (42
Modern Transport, April 16, p. 11.
New Kingsferry bridge. (1 200 words & figs.)

1960 **385** .1 (42
Modern Transport, April 30, p. 3.
Sir Gilmour JENKINS. — **The State and transport economics.** (2 200 words.)

1960 **621** .335 (42)
Modern Transport, May 7, p. 3.
New 50-cycle locomotive. (2 900 words & figs.)

1960 **621** .431 .72 (485)
Modern Transport, May 14, p. 5.
Swedish Diesel-pneumatic locomotive. (2 500 words & figs.)

1960 **656** .2 (42)
Modern Transport, May 21, p. 3.
Fruits of modernisation. — Increased freight and passenger traffic. (1 200 words & tables.)

1960 **621** .431 .72 (42)
Modern Transport, May 21, p. 11.
Diesel locomotive maintenance depot. (400 words & fig.)

Permanent Way. (Tokyo.)

1959 **625** .175 (52)
Permanent Way, December, No. 4, p. 1.
MASASHI HAYAKAWA. — **" Ma-Ya 341 ,,. — A new high speed track inspection car.** (6 500 words, tables & figs.)

1959 **625** .172 (52)
Permanent Way, December, No. 4, p. 21.
YOSHIO SHINOHARA. — **Track renewal using one track.** (2 400 words & figs.)

1959 **621** .33 (52)
Permanent Way, December, No. 5, p. 25.
RYUICHIRO CHUJO. — **163 km/h trial run.** (2 000 words & figs.)

1960 **625** .143 .4 (52)
Permanent Way, March, No. 6, p. 1.
NAOKI SASAKI. — **Stresses at rail joints as influenced by bolt holes.** (2 600 words, tables & figs.)

1960 **625** .172 (52) & **625** .4 (52)
Permanent Way, March, No. 6, p. 12.
HIDEAKI SEKINO and TOMOJI KAZAMAKI. — **The track of a subway.** (3 600 words, tables & figs.)

Railway Age. (New York.)

1960 **656** .225 (73)
Railway Age, March 28, p. 19.
" One-plan " piggyback urged. (600 words.)

1960 **656** .225 (73)
Railway Age, March 28, p. 24.
Why Bristol-Myers likes plan III. (1 500 words & figs.)

1960 **656** .225 (73)
Railway Age, March 28, p. 49.
TOFC lures autos back to rails. (1 000 words & figs.)

1960 **625** .214
Railway Age, April 18, p. 23.
Hotbox detector cuts setouts. (400 words & figs.)

Railway Engineering. (Cape Town.)

1960 **625** .234 (68)
Railway Engineering, March, p. 35.
Stone air conditioning in S.A.R. dining car sets. (900 words & figs.)

1960 **656** .223 (68)
Railway Engineering, March, p. 47.
New freight vehicle doubles as road semi-trailer or railway wagon. (400 words & fig.)

1960 **656** .225
Railway Engineering, April, p. 28.
DAY (J.R.). — **' Piggyback " traffic creates clearance problems in Europe and America.** (1 000 words & figs.)

1960 **625** .13 (68)
Railway Engineering, May, p. 27.
Natal railway tunnels are longest in South Africa. (700 words & figs.)

1960 **621** .7 (68)
Railway Engineering, May, p. 29.
Heat-treatment furnace will double output of Germiston axle works. (1 000 words & figs.)

1960 **621** .132 .8 (68)
Railway Engineering, May, p. 32.
Henschel Engineer reviews performance of S.A.R. condensing locomotives. (1 000 words.)

The Railway Gazette. (London.)

1960 **624** .8 (42)
The Railway Gazette, April 22, p. 482.
New Kingsferry lifting bridge. (400 words & figs.)

1960 **621** .33 (42)
The Railway Gazette, April 22, p. 483.
British Railways 25-kV a.c. electric locomotive. (1 800 words & figs.)

1960 **624** .63 (73)
The Railway Gazette, April 29, p. 510.
Economical pre-stressed concrete bridge. (1 000 words & figs.)

1960 **625** .143
The Railway Gazette, April 29, p. 511.
WISE (S.). — **Work-hardening bolt holes in rail ends.** (500 words & figs.)

1960 **621** .33 (43) & **656** .25 (43)
The Railway Gazette, May 6, p. 534.
Automatic train control in Western Germany. (300 words & figs.)

1960 **656** .22
The Railway Gazette, May 6, p. 537.
Numerical and letter codes on railways. (1 300 words & figs.)

1960 **621** .335 (47)
The Railway Gazette, May 6, p. 541.
Single-phase Bo-Bo locomotives for U.S.S.R. (1 400 words & figs.)

1960 **656** .212 (42)
The Railway Gazette, May 13, p. 567.
THURGOOD (K.E.). — **North Eastern Region : Modernisation of freight terminals.** (2 000 words & figs.)

1960 **625** .215 (42)
The Railway Gazette, May 13, p. 573.
Friction-controlled suspension for wagon bogies. (1 000 words & figs.)

1960 **656** .212 .5 (42)
The Railway Gazette, May 13, p. 577.
Automatic wagon control in marshalling yards. (1 000 words & figs.)

1960 **621** .33 (42)
The Railway Gazette, May 20, p. 503.
Main-line electrification in the London Midland Region. (1 600 words & figs.)

1960 **625** .142 .4
The Railway Gazette, May 20, p. 596.
Research by U.T.C. into types of concrete sleeper. (300 words & fig.)

1960 **621** .431 .72 (42)
The Railway Gazette, May 20, p. 597.
Finsbury Park Diesel maintenance depot. (1 000 words & figs.)

1960 **621** .431 .72 (6)
The Railway Gazette, May 27, p. 621.
Twin-unit Diesel railcars for Nigeria. (1 800 words & figs.)

1960 **625** .17 (42)
The Railway Gazette, May 27, p. 624.
Breakdown cranes for British Railways. (700 words & figs.)

1960 **621** .431 .72 (492) & **621** .33 (492)
The Railway Gazette, May 27, p. 625.
Traction on the Netherlands Railways. (3 600 words & figs.)

1960 **625** .232 (42)
The Railway Gazette, June 3, p. 650.
Kitchen buffet cars for British Railways. (1 400 words & figs.)

1960 **621** .335 (493)
The Railway Gazette, June 3, p. 656.
Belgian electric shunting locomotives. (800 words & figs.)

1960 **621** .338 (42)
The Railway Gazette, June 3, p. 657.
High-voltage multiple-unit stock for British Railways. (2 600 words & figs.)

Diesel Railway Traction. (London.)

1960 **621** .431 .72 (6)
Diesel Railway Traction, April, p. 127.
Twin-unit trains for Nigeria. (3 000 words & figs.)

1960 **621** .431 .72 (494)
Diesel Railway Traction, April, p. 133.
New Swiss shunting locomotive. (800 words & figs.)

1960 **621** .431 .72
Diesel Railway Traction, April, p. 137.
Mekydro hydraulic transmission. (4 000 words & figs.)

1960 **621** .431 .72
Diesel Railway Traction, April, p. 151.
New hydrostatic-drive locomotive. (1 500 words & figs.)

1960 **621** .431 .72 (47)
Diesel Railway Traction, April, p. 155.
Soviet narrow-gauge locomotive. (1 800 words & figs.)

Railway Locomotives and Cars. (New York.)

1960 **625** .212 (73)
Railway Locomotive and Cars, May, p. 21.
Mobile units check freight-car axles. (1 000 words & figs.)

1960 **621** .431 .72 (73)
Railway Locomotive and Cars, May, p. 32.
Slip control for high-power Diesels. (1 200 words & figs.)

1960 **625** .233 (73)
Railway Locomotive and Cars, May, p. 41.
LEGG (L.E.). — **CNW 12-Volt lighting is economical.** (700 words & figs.)

In Spanish.

Boletin de la Comisión Permanente de la Asociación del Congreso Panamericano de Ferrocarriles. (Buenos Aires.)

1960 **625** .143
Bol. de la Com. Perman. de la Asociación del Congreso Panameric. de Ferrocarriles, enero-febrero, p. 24.
GARCIA RAVASSI (R.A.) & REPETTO (V.A.). — Algo mas sobre **rieles largos.** (4 000 palabras & fig.)

1960 **621** .133 .3
ol. de la Com. Perman. de la Asociación del Congreso Panameric. de Ferrocarriles, enero-febrero, p. 55.
CANDELA MUNAR (L.). — **Desincrustación de lderas.** (1 600 palabras.)

1960 **385** (725)
ol. de la Com. Perman. de la Asociación del Congreso Panameric. de Ferrocarriles, enero-febrero, p. 60.
RAMIREZ CARAZA (J.M.) & VASCONCELOS .I.). — **Antecedentes historicos de la capacitación rroviaria en Mexico.** (2 000 palabras.)

Ferrocarriles y Tranvias. (Madrid.)

1960 **656** (460)
errocarriles y Tranvias, vol. 26-III, n° 295, p. 71.
SANCHEZ GAMBORINO (F.-M.). — La **coornación ferrocarril-carretera** y los « Servicios públicos » e transportes. (1 200 palabras.)

1960 **625** .42 (42)
errocarriles y Tranvias, vol. 26-III, n° 295, p. 74.
MURRAY (H.). — El **ferrocarril subterráneo de ondres.** (700 palabras.)

Revista de Obras Publicas. (Madrid.)

1960 **624** .2
evista de Obras Publicas, junio, p. 443.
HACAR BENITEZ (M.-A.). — Aplicación de los omentos de orden superior a la **determinación de las acciones de empotramiento de vigas y placas.** (2 000 labras & fig.)

In Hungarish (= 494.511).

Közlekedéstudományi Szemle. (Budapest.)

1959 **656** = 494 .511
özlekedéstudományi Szemle, n° 5/6, p. 198.
CZÉRE (B.). — Principes fondamentaux du **calcul la capacité de rendement dans les communications.** 500 mots.)

1959 **656** .251 (4) = 494 .511
özlekedéstudományi Szemle, n° 5/6, p. 206.
PÓSA (J.). — **Nouvelles tendances dans la signalisation** s chemins de fer européens. (2 000 mots & fig.)

1959 **656** .251 = 494 .511
özlekedéstudományi Szemle, n° 5/6, p. 233.
HORVÁTH (L.G.). — La **sécurité des communicaons** et la **perception dans l'obscurité.** (3 800 mots & fig.)

1959 **656** = 494 .511
özlekedéstudományi Szemle, n° 5/6, p. 249.
FELFÖLDI (L.). — **Analyse des diverses méthodes chargement** appliquées dans certaines branches du nsport. (3 900 mots & tableaux.)

In Italian.

Giornale del Genio Civile. (Roma.)

1960 **691**
Giornale del Genio Civile, aprile, p. 273.
Norme techniche per l'impiego delle strutture in cemento armato precompresso. (8 000 parole & fig.)

1960 **691**
Giornale del Genio Civile, aprile, p. 289.
DUTRON (R.). — Proposta di un **metodo internazionale di prova dei cimenti.** Metodo RILEM-CEMBUREAU per la determinazione delle resistenze meccaniche. (4 000 parole & tabelle.)

Ingegneria Ferroviaria. (Roma.)

1960 **625** .212
Ingegneria Ferroviaria, maggio, p. 375.
PAGLIALUNGA (L.). — Considerazioni sul **calcolo degli assili tramviari e ferroviari.** (6 000 parole, tavole & fig.)

1960 **656** .223 .2
Ingegneria Ferroviaria, maggio, p. 387.
BORDONI (F.), D'AGOSTINO (C.) & DAVITE (A.). — **Ricerca operativa applicata ai centri di scomposizione e ricomposizione dei treni merci.** (5 000 parole & fig.)

1960 **621** .332
Ingegneria Ferroviaria, maggio, p. 397.
BENOFFI (U.). — Il calcolo dei **pali metallici a traliccio unificati per linee di contatto.** (2 500 parole, tabelle & fig.)

1960 **656** .211 .5 (45)
Ingegneria Ferroviaria, maggio, p. 405.
BAGGIANI (W.). — **Nuove pensiline nelle stazioni** di Bari Centrale e Venezia Mestre. (2 000 parole & fig.)

Politica dei Trasporti. (Roma.)

1960 **656**
Politica dei Trasporti, maggio, p. 257.
CUTTICA (A.). — **Norme di coordinamento tecnico per i trasporti.** (1 200 parole.)

Rivista di Ingegneria. (Milano.)

1960 **624** .2
Rivista di Ingegneria, maggio, p. 531.
MATTIAZZO (F.). — **Sul calcolo dei graticci di travi ortogonali elastoplastiche.** (3 000 parole & fig.)

Trasporti Pubblici. (Roma.)

1960 **625** .1 (45)
Trasporti Pubblici, aprile, p. 541.
AMOROSO (P.). — **Opere realizzate sulla ferrovia Trento-Malè.** (3 000 parole & fig.)

1960 **625** .24 (45)
Trasporti Pubblici, aprile, p. 569.
DARD (M.). — I **nuovi carri merci specializzati** delle F.S. (2 000 parole & fig.)

In Netherlands.

De Ingenieur. (Den Haag.)

1960 **681**
De Ingenieur, nr 25, 17 juni, p. E. 37.
Het behandelen van problemen in de sterkstroomtechniek door middel van een analoge- of een digitale rekenmachine.
I. Algemene inleiding tot de analoge machines, door M.P. BREEDVELD. (2 500 woorden & fig.)
II. Overgangsverschijnselen van de asynchrone draaistroommachine, door J.F. BLOM. (2 500 woorden & fig.)

Spoor- en Tramwegen. (Den Haag.)

1960 **385** .6 (4)
Spoor- en Tramwegen, nr 9, 5 mei, p. 139.
BREEDVELD (P.). — De **internationale samenwerking op spoorweggebied.** (1 500 woorden & tabellen.)

1960 **656** .222 .5 (4)
Spoor- en Tramwegen, nr 9, 5 mei, p. 142.
DE GRAAFF (W.J.). — Het **internationale reizigersverkeer.** (1 500 woorden & fig.)

1960 **656** .222 .6 (4)
Spoor- en Tramwegen, nr 9, 5 mei, p. 146.
BOOT (B.C.M.). — **Internationale goederendienst.** (2 200 woorden & fig.)

1960 **347** .763 .4 (4)
Spoor- en Tramwegen, nr 9, 5 mei, p. 150.
VAN DER MEULEN (J.H.). — **Internationale spoorwegwetgeving.** (2 000 woorden.)

1960 **621** .33
Spoor- en Tramwegen, nr 9, 5 mei, p. 154.
ANKERSMIT (J.E.J.). — De ontwikkeling van de **stroomstelsels der elektrische tractie.** (3 000 woorden & fig.)

1960 **385** .58 (4)
Spoor- en Tramwegen, nr 9, 5 mei, p. 165.
LANDSKROON (E.P.A.). — De **arbeidsvoorwaarden** bij de Europese spoorwegen. (1 500 woorden.)

1960 **351** .757 (4
Spoor- en Tramwegen, nr 9, 5 mei, p. 166.
STUITJE (D.R.). — **Spoorwegpolitiekorpsen** in enkel Europese landen en daarbuiten. (2 000 woorden.)

1960 **385**
Spoor- en Tramwegen, nr 9, 5 mei, p. 171.
HOOFTMAN (J.C.). — **Heeft de spoorweg nog toekomst ?** (3 500 woorden.)

1960 **656** .2 (492
Spoor- en Tramwegen, nr 10, 19 mei, p. 175.
VAN BILDERBEEK (B.). — De « **Exploitatie** » **bij de Nederlandse Spoorwegen.** (4 000 woorden & fig.)

1960 **656** .222 .5 (492
Spoor- en Tramwegen, nr 10, 19 mei, p. 182.
DE GRAAFF (W.J.). — De **nieuwe reizigerstreinen dienst 1960.** Hoe en waarom ? (4 000 woorden & fig.)

1960 **625** .2
Spoor- en Tramwegen, nr 11, 2 juni, p. 199.
RAMEIJER (G.H.). — NS en de **autoslaaptreinen** in West-Europa. (1 500 woorden & fig.)

1960 **621** .436 (492
Spoor- en Tramwegen, nr 11, 2 juni, p. 202.
Nieuwe, door middel van brandstofolie gekoelde dieselmotoren voor de locomotoren serie 200/300 van de N.S. (1 000 woorden & fig.)

1960 **385** (09 (44
Spoor- en Tramwegen, nr 11, 2 juni, p. 204 en nr 12 16 juni, p. 219.
HUPKES (G.). — **Modernisering bij de Franse Spoorwegen.** I.-II. (4 500 woorden & fig.)

1960 **385** (09 (68
Spoor- en Tramwegen, nr 12, 16 juni, p. 215.
VAN LOON (O.C.A.). — **Een eeuw spoorwegen in Zuid-Afrika.** (3 000 woorden & fig.)

1960 **625** .232 (47
Spoor- en Tramwegen, nr 12, 16 juni, p. 226; nr 13 30 juni, p. 241.
REESKAMP (J.H.E.). — **Moskou-Hoek van Holland zonder overstappen.** (*Wordt vervolgd.*) (3 000 woorden & fig.)

In Portuguese.

Gazeta dos Caminhos de ferro. (Lisboa.)

1960 **385** (09 .3 (469
Gazeta dos Caminhos de ferro, nº 1740, 16 de Junho p. 119.
DE QUADROS ABRAGAO (F.). — No **Centenário dos Caminhos de Ferro** em Portugal. Algumas notas sobre a sua história. (*Continua.*) (4 000 palavras.)

Tecnica. (Lisboa.)

1960 691

ecnica, nº 301, Abril, p. 375.
AROUCA (L.). — Algumas consideraçôes sobre a **plicaçâo dos aços de alta resistência no moderno betâo rmado.** (4 000 palavras & fig.)

In Rumanian (= 599).

Revista Cáilor Ferate. (Bucarest.)

1959 625 .122 = 599

evista Cáilor Ferate, janvier, p. 6.
Stabilité du talus de la plateforme de la voie. (3 300 ots & fig.)

1959 621 .39 = 599

evista Cáilor Ferate, janvier, p. 14.
PERCIUN (N.). — **La technique contemporaine de transmission multiple par lignes aériennes.** (4 800 mots.)

1959 621 .133 .1 = 599

evista Cáilor Ferate, janvier, p.22.
RUSU (G.) et TASCH (G.). — L'économie de cha-ur et de combustible due à l'application des **injecteurs vapeur** aux locomotives. (3 900 mots & fig.)

1959 656 .257 = 599

evista Cáilor Ferate, janvier, p. 27.
MARIS (M.). — Directives principales concernant s projets et le montage des **installations de la commande entralisée à relais,** basées sur l'expérience d'une station 'essai. (6 000 mots & fig.)

1959 621 .135 .1 = 599

evista Cáilor Ferate, janvier, p. 36.
VATASAN (O.). — Dispositif pour perfectionner s **mesures du châssis des locomotives** à l'aide d'un fil. 1 400 mots & fig.)

1959 656 .253 = 599

evista Cáilor Ferate, février, p. 67.
POP (J.). — **Signalisation du passage des gares sans rrêt.** (1 700 mots & fig.)

1959 656 .257 = 599

evista Cáilor Ferate, février, p. 70.
JUCU (C.). — **Construction accélérée des postes 'aiguillages** à l'aide d'éléments préfabriqués. (2 000 mots t fig.)

1959 621 .134 .1 (498) = 599

evista Cáilor Ferate, février, p. 78.
POPOVICI (E.) et MIHAILESCU (N.). — Recher-hes concernant l'**usure des cylindres de locomotives** ux Chemins de fer Roumains. (2 900 mots & fig.)

1959 621 .133 .1 = 599

Revista Cáilor Ferate, février, p. 83.
BICLESANU (D.), CARABOGDAN (I.) et WEST-FRIED (F.). — **Nomogrammes pour le calcul de la combustion** dans les foyers et chambres de combustion des chaudières. (2 300 mots & fig.)

1959 656 .259 = 599

Revista Cáilor Ferate, février, p. 86.
TUDOR (S.M.). — Influence de la vibration et des chocs sur le **fonctionnement des relais électromagnétiques.** (3 600 mots & fig.)

In Russian (= 491.7).

Avtomatica, Télémechanika i Svias. (Moscou.)

1959 656 .254 = 491 .7

Avtomatica, Télémechanika i Svias, avril, p. 8.
SAFRONOV (A.D.). — **Moyens d'amélioration des projets d'automatisation, de télémécanisation et de télécommunications.** (1 100 mots.)

1959 656 .256 = 491 .7

Avtomatica, Télémechanika i Svias, avril, p. 10.
POUCHKARYEV (B.N.). — Amélioration de la **stabilité de fonctionnement des circuits de voie monorails.** (1 300 mots & fig.)

1959 621 .332 : 656 .254 = 491 .7

Avtomatica, Télémechanika i Svias, avril, p. 13.
Procédé de réduction de l'**interférence des lignes de contact sur les lignes de télécommunications.** (3 600 mots & fig.)

1959 385 = 491 .7

Avtomatica, Télémechanika i Svias, avril, p.26.
KRAPTCHITOV (V.S.). — L'efficacité technique et économique de la **modernisation des installations ferroviaires.** (1 400 mots.)

1959 621 .39 = 491 .7

Avtomatica, Télémechanika i Svias, avril, p. 44.
BRODSKY (M.S.) et YÉGOROV (M.D.). — Amplificateur pour l'appareil de **détection des défauts de câbles.** (800 mots & fig.)

1959 656 .254 = 491 .7

Avtomatica, Télémechanika i Svias, mai, p. 5.
OUMANSKY (G.M.). — **Installation de télévision ferroviaire du type ZTU-3.** (1 400 mots & fig.)

1959 656 .253 = 491 .7

Avtomatica, Télémechanika i Svias, mai, p. 9.
MASLOV (A.T.). — **Schémas d'enclenchements des signaux lumineux d'avertissement en avant des sémaphores.** (1 600 mots & fig.)

1959 **656 .25 : 621 .33 = 491 .7**
Avtomatica, Télémechanika i Svias, mai, p. 12.
POKROVSKY (M.A.). — **Installations de sécurité sur les chemins de fer électrifiés en courant alternatif.** (2 700 mots & fig.)

1959 **621 .39 = 491 .7**
Avtomatica, Télémechanika i Svias, mai, p. 22.
RAKOV (A.I.) et GOULAIEV (N.N.). — **Dispositif de détection des sources de perturbations dans la TSF.** (1 000 mots & fig.)

1959 **621 .35 = 491 .7**
Avtomatica, Télémechanika i Svias, mai, p. 30.
SOROKHOVITCH (A.E.). — **Chargement automatique des batteries d'accumulateurs.** (1 300 mots & fig.)

Eléktritchesskaïa i Tyeplovosnaïa Tyaga. (Moscou.)

1959 **621 .431 .72 (47) = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, avril, p. 1.
TYERYEKHOV (V.M.). — Perspectives de l'**évolution de la traction Diesel** dans le plan septennal en cours. (2 300 mots.)

1959 **621 .138 .5 = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, avril, p. 4.
LOUTZIK (P.I.) et GORINE (N.N.). — Notre expérience dans l'organisation des **réparations dans les dépôts de locomotives à courant alternatif.** (2 200 mots, tableau & fig.)

1959 **621 .431 .72 (47) = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, avril, p. 9.
KALMYKOV (A.M.) et BERCHADSSKY (P.I.). — Le **moteur Diesel** pour la locomotive M 751. (2 300 mots & fig.)

1959 **621 .333 = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, avril, p. 27.
VOLF (A.M.). — L'élargissement du rayon de dépôt exerce-t-il une influence sur l'**échauffement des bobines des moteurs de locomotives électriques** ? (1 800 mots & fig.)

1959 **621 .33 = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, mai, p. 6.
SAITSEV (A.I.). — L'expérience de l'**exploitation des sections de contact en courant alternatif et en courant continu.** (2 500 mots & fig.)

1959 **621 .332 = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, mai, p. 12.
KAPOUSTINE (L.D.). — Contrôle continu de l'**isolation des circuits de commande** des sections électriques. (1 200 mots & fig.)

1959 **621 .31 = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, mai, p. 20.
FLEICHMAN (L.S.), BOBROV (E.G.) et SOKOLOV (S.D.). — **Essai d'un nouvel ensemble de redresseurs à connexion de pont triphasé.** (2 300 mots & fig.)

1959 **621 .335 = 491 .7**
Eléktritchesskaïa i Tyeplovosnaïa Tyaga, mai, p. 29.
TOUCHKANOV (B.A.). — Le **schéma électrique de la locomotive à courant alternatif, Série H 60.** (3 600 mots & fig.)

Jeleznodoroznyï Transporte. (Moscou.)

1959 **625 .143 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 9.
BARDINE (I.P.). — **Amélioration de la qualité des rails** conformément aux nouvelles conditions de travail. (3 800 mots.)

1959 **656 .222 .5 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 25.
KARNOVSKY (A.I.). — **Adaptation des horaires de la marche des trains à ceux de la circulation des locomotives.** (2 500 mots & fig.)

1959 **385 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 30.
ISOSSIMOV (A.V.). — **Accroissement des moyens de transport ferroviaire fondamentaux et leur amortissement.** (3 700 mots.)

1959 **656 .23 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 36.
VINITCHENKO (N.G.). — Possibilités de **simplification de l'établissement des tarifs ferroviaires.** (3 400 mots & tableaux.)

1959 **656 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 50.
DEL RIO (B.). — **L'automatisation de la planification principale du transport rail-route.** (2 100 mots & fig.)

1959 **656 .225 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 56.
VEXLÈRE (V.M.) et CHARANOVITCH (P.A.). — L'efficacité d'une **méthode vibratoire de déchargement des wagons-tombereaux.** (1 700 mots & fig.)

1959 **656 .212 .5 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 68.
DMITRIEV (L.M.). — **Dispositifs de pesage des wagons dans les gares de triage automatisées.** (1 900 mots, tableaux & fig.)

1959 **621 .135 .2 = 491 .7**
Jeleznodoroznyï Transporte, mai, p. 72.
KISSLICK (V.A.) et SALMAN (B.M.). — **Mesure de la tension dans les bandages d'essieux montés en marche.** (1 200 mots & fig.)

Transportnoïé Stroïtyelstvo. (Moscou.)

1959 **625** .1 (47) = 491 .7
Transportnoïé Stroïtyelstvo, mars, p. 8.
ALEXYEYEV (E.P.) et PAOUL (V. G.). — **Nouvelle ligne ferroviaire Abacane-Taïchète.** (2 600 mots & fig.)

1959 **656** .257 = 491 .7
Transportnoïé Stroïtyelstvo, mars, p. 19.
STYÉPANOV (N.M.). — Expérience de l'application de la **commande centralisée à éléments interchangeables.** (1 600 mots & fig.)

1959 **624** = 491 .7
Transportnoïé Stroïtyelstvo, mars, p. 31.
SAROUBINE (N.E.). — **Mesures à prendre contre le gonflement des fondations.** (1 400 mots & fig.)

1959 **656** .212 .5 = 491 .7
Transportnoïé Stroïtyelstvo, mars, p. 40.
KORNACOV (A.M.). — **Jonction des faisceaux d'acceptation et d'expédition sur les bosses de triage unilatérales.** (2 200 mots & fig.)

1959 **656** .21 = 491 .7
Transportnoïé Stroïtyelstvo, mars, p. 43.
SSEMYÉNYACO (A.F.). — Méthodologie nouvelle de la détermination de la **capacité des gares ferroviaires.** (1 300 mots & fig.)

1959 **621** .332 = 491 .7
Transportnoïé Stroïtyelstvo, avril, p. 29.
MOGUILESSKINE (M.A.) et FÉOLOGOV (I.I.). — **Fixation des traverses rigides sur supports en béton armé des lignes de contact.** (1 000 mots & fig.)

1959 **691** = 491 .7
Transportnoïé Stroïtyelstvo, avril, p. 39.
DYÉLLOCE (K.P.). — Méthode précise de **calcul des pertes causées par l'affaissement et la contraction du béton.** (1 500 mots & fig.)

In Czech. (= 91.886).

Inženýrské Stavby. (Praha.)

1960 **624** (437) = 91 .886
Inženýrské Stavby, n° 6, p. 201.
ZEMAN (J.). — Les **ponts métalliques en Tchécoslovaquie** au cours des quinze dernières années. (5 000 mots & fig.)

M. Weissenbruch & Co., Ltd., Printer to the King, 49, rue du Poinçon, Bruxelles.

MONTHLY BIBLIOGRAPHY OF RAILWAYS[1]

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[016 .385 (02]

I. — BOOKS.

In French.

1960 621 .8

IMMLER (C.R.).

La commande hydraulique. 2e édition.

Paris, Dunod, éditeur. Un volume (16 × 25 cm) de 38 pages, avec 55 figures. (Prix : 68 N.F.)

1960 62 (02

HÜTTE — **Manuel de l'Ingénieur,** par la Société cadémique Hütte. Traduit de l'allemand. 28e édition. *ome I.*

Paris, Librairie Polytechnique Béranger, éditeur. Un olume (13 × 19 cm), de 1 844 pages avec 1 409 figures 725 tableaux. (Prix : 160 N.F.)

1960 385 (08 (675)

FFICE D'EXPLOITATION DES TRANSPORTS COLONIAUX (OTRACO).

Rapport 1959.

Bruxelles, OTRACO, 101, avenue Louise. Une bro- ure (22 × 29 cm), de 50 pages, avec carte, tableaux graphiques.

1960 625 .244 (06

OCIÉTÉ FERROVIAIRE INTERNATIONALE DE TRANSPORTS FRIGORIFIQUES.

Interfrigo. Xe Anniversaire. 1949-1959.

Bruxelles, édité par la Société ci-dessus, 17, rue de ouvain. Un volume (21 × 29.5 cm), de 106 pages, vec illustrations et tableaux.

In German.

1960 621 .13

bering. F.W. ECKHARDT.

Die Konstruktion der Dampflokomotive und ihre erechnung.

Berlin, VEB Verlag Technik. DIN A5, 186 Seiten it 97 Abbildungen, Anhang. (Preis : Ganzleinen, M 10.—.)

1960 625 .1

Elsners Taschenbuch für den bautechnischen Eisen- hndienst. 32. Jahrgang.

Frankfurt/Main, Dr. Arthur Tetzlaff-Verlag. 392 Sei- n mit über 170 Abbildungen im Text. (Preis : Ganz- inen, DM 6.—.)

In English.

1960 385 (03

Glossary of railway terms : English-French-German-Italian-Spanish-Swedish. Compiled by Jean HERBERT.

One volume (7 1/2 × 5 1/4 in.) of 413 pages. Paper covers.

Published under the auspices of the International Union of Railways, by the Elsevier Publishing Company.

London : D. Van Nostrand Co. Ltd., 358, Kensington High Street, W. 14. (Price : 30 s.)

1960 656 .2

Railway progress 1909-1959.

Volume 1.

One volume (8 1/2 × 5 1/2 in.) of 140 pages + 24 pages half-tone illustrations.

Compiled and published by the Stephenson Locomotive Society, and obtainable from the Society, 32, Russell Road, London W. 14. (Price : 10 s. 6 d.)

1960 385 .3 (08 (54)

Report by the Railway Board on Indian Railways for 1958-1959.

One volume (8 1/4 × 13 3/8 in.) of 351 pages.

Published by the Manager of Publications. Government of India, Ministry of Railways (Railway Board), New-Delhi.

1960 656 .2 (0

WATSON (J.).

Stamps and Railways.

One volume (8 × 5 1/2 in.) of 142 pages, illustrated.

London : Faber & Faber Ltd., 24, Russell Square, W.C. 1. (Price : 12 s. 6 d.)

1960 385 (09 (3)

World Railways.

Sixth Edition (1960).

Publishers : Sampson Low, Marston & Co. Ltd., Potter Row, Great Missenden, Bucks. (Price : £ 5.5.0 net. — Plus postage and packing 2/6 d.)

(1) The numbers placed over the title of each book are those of the decimal classification proposed by the Railway Congress njointly with the Office Bibliographique International, of Brussels, (See « Bibliographical Decimal Classification as applied to Railway ience ». by L. WEISSENBRUCH, in the number for November 1897, of the *Bulletin of the International Railway Congress*, p. 1509).

[016 .385 (05]

II. — PERIODICALS.

In French.

Annales de l'Institut Technique du Bâtiment et des Travaux Publics. (Paris.)

1960 **69**

Annales de l'Institut Techn. du Bâtiment et des Trav. Publics, juillet-août, p. 709.

Compte rendu des recherches des laboratoires du Bâtiment et des Travaux Publics effectuées en 1959, sous la direction de R.G. L'HERMITE. (12 000 mots, tableaux & fig.)

1960 **624** .63 (493)

Annales de l'Institut Techn. du Bâtiment et des Trav. Publics, juillet-août, p. 749.

LOUIS (H.). — La **construction du pont de Commerce** sur la Meuse à Liège. (5 000 mots & fig.)

Annales des Travaux Publics de Belgique. (Bruxelles.)

1960 **691**

Annales des Travaux Publics de Belgique, n° 1, février, p. 7.

VANDEPERRE (L.J.) et PLISNIER (J.). — **La granulométrie, le dosage et la préestimation des bétons** — le durcissement des ciments. (*I*re *Partie*.) (12 000 mots, tableaux & fig.)

Bulletin de l'Association Suisse des Electriciens. (Zürich.)

1960 **621** .315

Bull. de l'Ass. Suisse des Electriciens, 2 juillet, p. 637.

DIETERLE (W.). — Contribution à la connaissance de la résistance au choc électrique de **papiers isolants.** (9 800 mots & fig.)

1960 **621** .319

Bull. de l'Ass. Suisse des Electriciens, 30 juillet, p. 733.

ELSNER (H.). — Alterung und Verluste von **Imprägniermitteln für Kondensatoren.** (8 600 mots & fig.)

1960 **621** .317

Bull. de l'Ass. Suisse des Electriciens, 13 août, p. 769.

BERGER (K.). — Neue Erkenntnisse über das Verhalten und die Prüfung von Spannungsteilern zur **Messung sehr hoher, rasch veränderlicher Stosspannungen.** 8 500 mots & fig.)

Bulletin scientifique de l'Association des Ingé[nieurs] électriciens sortis de l'Institut Electro[technique] Montefiore. (Liège.)

1960 **621** .

Bull. scient. de l'Assoc. des Ing. électr. sortis de l'Institu[t] Electrotechnique Montefiore, avril, p. 189.

BAUER (H.). — **Machines à calculer analogiques** « SIELOMAT » et leur application à la répartition automatique optimale des charges et à la régulation d[u] fréquence et de puissance. Une vue d'ensemble pou[r] l'avenir. (9 500 mots & fig.)

Bulletin de la Société Française des Electriciens. (Paris.)

1960 **625** .23

Bulletin de la Société Française des Electriciens, juin p. 351.

BLANCHERIE (R.). — **L'éclairage des véhicules sur rail.** (9 000 mots.)

C.F.F. (Berne.)

1960 **625** .14

C.F.F., août, p. 3.

SIMON (W.). — **L'expérience des longs rails soudés** (600 mots.)

Chemins de fer. (Paris.)

1960 **621** .335 (44

Chemins de fer, mai-juin, p. 67.

CAIRE (D.). — Le **nouvel autorail électrique « Tou[s] Services »** continu 1 500 V de la S.N.C.F. — série Z 710 à 7133. (1 800 mots & fig.)

1960 **621** .335 (42

Chemins de fer, mai-juin, p. 72.

LAMY-DURAY (J.-S.). — **Locomotive électrique à courant alternatif 25 kV - 50 Hz** - des British Railways type BB - 3 300 ch de la General Electric Company Limited, étudiée pour la London Midland Region (2 000 mots & fig.)

1960 **625** .282 (498

Chemins de fer, mai-juin, p. 75.

CAIRE (D.). — **Locomotives Diesel-électriques de 2 100 ch de la série 060 DA** livrées aux Chemins de Fe[r] Roumains (C.F.R.) par l'Industrie Suisse Sulzer, Brow[n] Boveri, S.L.M. à Winterthur. (6 000 mots & fig.)

1960 **65**

Chemins de fer, mai-juin, p. 87.

PORCHER (B.). — Pour une **saine coordination du Rail et de la Route** en service voyageurs. (2 000 mot[s] & fig.)

1960 625 .24 (44)
iemins de fer, mai-juin, p. 90.
MERTENS (M.) et MOREAU (G.). — **Le matériel rchandises unifié** de la S.N.C.F. (*A suivre.*) (1 500 mots fig.)

Génie Civil. (Paris.)

1960 624 (43)
énie Civil, n° 3519, 1er juillet, p. 298.
Le pont métallique Severin sur le Rhin, à Cologne. 500 mots & fig.)

1960 624 .2
énie Civil, n° 3520, 15 juillet, p. 321.
LEFAUDEUX (G.). — **Poutres droites en béton mé de grande portée :** fluage du béton, surtension des matures. (400 mots & fig.)

1960 625 .13 (42 + 44)
énie Civil, nos 3521-22, 1er-15 août, p. 341.
Projet de gare rail-route pour le tunnel sous la Manche. 000 mots & fig.)

Rail et Traction. (Bruxelles.)

1960 621 .33 (493)
ail et Traction, mai-juin, p. 147.
SILENRIEUX (J.). — **Un an d'électrification à la .N.C.B. :** deux étapes. (2 000 mots & fig.)

1960 621 .33
ail et Traction, mai-juin, p. 159.
BAEYENS (F.). — Les **problèmes qui se posent à jonction de deux réseaux de chemins de fer électrifiés ns des systèmes différents.** (2 000 mots, tableaux fig.)

1960 621 .335
ail et Traction, mai-juin, p. 175.
LAMBERTS (P.). — **Le matériel de traction élec- ique polycourant.** (3 500 mots & fig.)

Revue Brown Boveri. (Baden.)

1960 621 .314
evue Brown Boveri, mai-juin, p. 321.
Méthode permettant de déterminer, à l'aide d'une alculatrice numérique, les **efforts électrodynamiques gissant sur les enroulements de transformateurs lors de ourts-circuits.** (3 400 mots & fig.)

1960 621 .313
evue Brown Boveri, mai-juin, p. 352.
Micadur — une nouvelle **isolation pour enroulements atoriques des machines électriques.** (3 800 mots & fig.)

Revue Générale des Chemins de fer. (Paris.)

1960 625 .232 (44)
evue Générale des Chemins de fer, juillet-août, p. 381.
DESMOULIN (M.) et MARTEAU (M.). — Les **ervices de restauration dans les trains** en France. 3 500 mots & fig.)

1960 656 .21 (44)
Revue Générale des Chemins de fer, juillet-août, p. 389.
LANGLOIS (M.), LEFAUDEUX (M.) et BARDON (M.). — **L'organisation des transports par voie ferrée** de la Presse Parisienne et les nouvelles installations spécialisées en gare de Paris-Lyon. (7 100 mots & fig.)

1960 625 .143 .1 (44)
Revue Générale des Chemins de fer, juillet-août, p. 401.
WAUTHIER (M.) et VENNIN (M.). — **Le reprofilage des rails usagés** par l'Atelier-Magasin de Saint-Dizier. (750 mots & fig.)

1960 656 .211 (44)
Revue Générale des Chemins de fer, juillet-août, p. 404.
CORNET (M.) et ROBERTIN (M.). — Les **futures installations de la gare de Paris-Montparnasse.** (3 200 mots, tableaux & fig.)

1960 656 .2 (44)
Revue Générale des Chemins de fer, juillet-août, p. 411.
ARNOLD (M.). — La nouvelle région industrielle de Lacq. — **Installations et transports ferroviaires.** (3 400 mots, tableaux & fig.)

Revue de l'Union Internationale des Transports Publics. (Bruxelles.)

1960 656 (494)
Revue de l'Union Intern. des Transp. Publics, vol. IX, n° 2, p. 77.
BORN (H.). — **Probleme des öffentlichen Verkehrs** in der Schweiz. (3 000 mots.)

1960 656 .253
Revue de l'Union Intern. des Transp. Publics, vol. IX, n° 2, p. 131.
CIRENEI (M.B.). — Quelques considérations sur la **répétition des signaux sur la locomotive.** (5 000 mots & fig.)

1960 621 .336
Revue de l'Union Intern. des Transp. Publics, vol. IX, n° 2, p. 189.
Installations modernes de redresseurs Sécheron à vapeur de mercure et à gaz rare. (1 200 mots & fig.)

1960 656 .211 .5
Revue de l'Union Intern. des Transp. Publics, vol. IX, n° 2, p. 195.
BOLLMANN (Ed.). — **Installations modernes pour l'émission de billets du système Edmonson.** (1 200 mots & fig.)

La Traction Electrique dans les Chemins de fer. (Bruxelles.)

1960 621 .335 (42)
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, n° 6, juin, p. 279.
MANSER (A.W.). — Les nouveaux trains de la ligne de Piccadilly du London Transport. (2 600 mots & fig.)

1960 **621** .337
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 6, juin, p. 289.
GERMANIER (R.). — Commande automatique à transducteur pour le démarrage de **véhicules automoteurs à courant alternatif.** (5 700 mots & fig.)

1960 **621** .332 (45)
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 6, juin, p. 304.
PASCUCCI (L.). — Distance économique entre les **sous-stations** de transformation des lignes des chemins de fer italiens de l'Etat électrifiées en courant continu 3 000 V. (3 800 mots & fig.)

1960 **621** .313
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 6, juin, p. 320.
LIEBE (W.). — Influence de la densité de l'air (altitude) sur le refroidissement des **machines électriques.** (1 050 mots & fig.)

1960 **621** .337 (42)
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 6, juin, p. 322.
Equipement de traction pour trains à 50 Hz. (1 950 mots & fig.)

La Vie du Rail. (Paris.)

1960 **621** .13 (42)
La Vie du Rail, 17 juillet, p. 12.
DOERR (M.) et MAILLET (M.). — « Evening Star » ou le **crépuscule de la locomotive à vapeur britannique.** (1 400 mots, tableaux & fig.)

1960 **625** .162 (493)
La Vie du Rail, 17 juillet, p. 5.
A son tour **la S.N.C.B. adopte les demi-barrières à certains passages à niveau.** (400 mots & fig.)

1960 **624** (44)
La Vie du Rail, 17 juillet, p. 14.
Relevage du pont de Marolles à Vitry-le-François. (500 mots & fig.)

1960 **621** .33 (4)
La Vie du Rail, 17 juillet, p. 20.
TUMINETTI (M.A.). — **Traction électrique de la Suisse à la mer** grâce à l'électrification Alessandria-Bellinzona. (450 mots & fig.)

1960 **385** (09 (87)
La Vie du Rail, 24 juillet, p. 11.
Les **Chemins de fer vénézuéliens.** (1 200 mots & fig.)

1960 **625** .245 (44)
La Vie du Rail, 24 juillet, p. 16.
FRANÇOIS (M.). — A l'arrondissement traction de Rouen. — La **voiture-école diesel 040 DE.** (1 100 mots & fig.)

1960 **656** .21 (44)
La Vie du Rail, 31 juillet, p. 11.
Amiens, centre ferroviaire et carrefour des grandes artères. (3 000 mots & fig.)

In German.

Die Bundesbahn. (Darmstadt und Köln.)

1960 **656** .222.6 (43)
Die Bundesbahn, Nr 11, Juni, S. 541.
ZILLER (H.). — **Verbesserungen im Güterzugverkehr** der Deutschen Bundesbahn zum Jahresfahrplan 1960-1961. (8 000 Wörter & Abb.)

1960 **656** .222 .6 (4
Die Bundesbahn, Nr 12, Juni, S. 601.
ZILLER (H.). — **TEEM.** (2 000 Wörter.)

1960 **625** .156
Die Bundesbahn, Nr 12, Juni, S. 606.
DELVENDAHL (H.). — Die neuen Richtlinien für **Gleisabschlüsse.** (4 000 Wörter & Abb.)

1960 **656** .2 (43)
Die Bundesbahn, Nr 12, Juni, S. 627.
DIETRICH (A.). — **Schienenersatzverkehre der Bundesbahn mit oder ohne Genehmigung.** (4 000 Wörter.)

1960 **385** .5 (43)
Die Bundesbahn, Nr 12, Juni, S. 633.
Über die **Grundsätze der Personalpolitik** der D.B. (2 500 Wörter.)

Deutsche Eisenbahntechnik. (Berlin.)

1960 **656**
Deutsche Eisenbahntechnik, Juni, S. 233.
GEISSLER (G.). — Die **Reorganisation der Forschung und Entwicklung im Verkehrswesen.** (2 000 Wörter & Abb.)

1960 **656**
Deutsche Eisenbahntechnik, Juni, S. 236.
FLEISCHER (H.). — **Kritische Einschätzung der Verkehrsträger** bei der Durchsetzung des Weltniveaus in der Technik und Technologie. (1 200 Wörter.)

1960 **656** .254 (43)
Deutsche Eisenbahntechnik, Juni, S. 241.
GAUSCH (H.). — Die **Fernsteuerung** des südlichen Berliner Aussenringes. (4 000 Wörter & Abb.)

1960 **656** .212 .5
Deutsche Eisenbahntechnik, Juni, S. 249.
WINKLER (H.). — Die **automatische Geschwindigkeitsregelung in Ablaufanlagen** von Rangierbahnhöfen. (4 000 Wörter & Abb.)

1960 **625** .282
Deutsche Eisenbahntechnik, Juni, S. 255.
BÜTTNER (S.). — **Diesellokomotiven von 100 bis 180 PS mit mechanischer und hydraulischer Kraftübertragung.** (2 000 Wörter, Tafeln & Abb.)

1960 **621** .135 .2 (43)
Deutsche Eisenbahntechnik, Juni, S. 258.
BUSSERT (R.). — Neuere Methoden in der **Wiederherstellung der Lokomotivlager** in den Bahnbetriebswerken der D.R. (3 000 Wörter & Abb.)

1960 **625** .144 .4
Deutsche Eisenbahntechnik, Juni, S. 263.
HÜLZENBECHER (E.). — **Technologie der Gleiserneuerung und Gleisunterhaltung.** (4 000 Wörter & Abb.)

1960 **625** .142 .4
Deutsche Eisenbahntechnik, Juni, S. 268.
VOIGT (P.). — Das **leichte Schwellenverlegegerät,** Bauart REW. (1 500 Wörter & Abb.)

1960 **625** .141
Deutsche Eisenbahntechnik, Juni, S. 271.
FRITSCHE (K.). — Eine Betrachtung über **Maschinen zur Reinigung der Bettung von Bahngleisen.** (2 000 Wörter.)

1960 **621** .138 .5
Deutsche Eisenbahntechnik, Juni, S. 274.
NIED (F.) und WÖSTENFELD (D.). — Die **Auswirkung der Umstellung auf Elektro- und Dieseltraktion bei der D.R. auf die Arbeit der Aussbesserungswerke.** *Fortsetzung folgt.*) (1 500 Wörter.)

1960 **625** .236
Deutsche Eisenbahntechnik, Juni, S. 277.
ZILLMER (E.). — **Waschanlagen für Reisezüge.** (1 600 Wörter & Abb.)

1960 **656** .212
Deutsche Eisenbahntechnik, Juni, S. 279.
GEBHARDT (R.). — Die **Neugestaltung der Güterverkehrsanlagen** eine Folge der neuen Ladeorganisation im Stückgutknotenpunktverkehr. (5 000 Wörter & Abb.)

1960 **624** (01
Deutsche Eisenbahntechnik, Juni, S. 287.
SAGASSER (G.). — **Brücke, Fahrzeug, Eisenbahnbetrieb** in ihren gegenseitigen Beziehungen. (3 500 Wörter & Abb.)

1960 **656** .25
Deutsche Eisenbahntechnik, Juni, S. 292.
Isolationsprobleme bei Betonschwellen. (800 Wörter.)

1960 **625** .143 .3
Deutsche Eisenbahntechnik, Juni, S. 305.
Die zwei Stadien des **seitlichen Schienenverschleisses** in Bögen. (1 000 Wörter & Abb.)

Der Eisenbahningenieur. (Frankfurt am Main.)

1960 **725** .31 (43)
Der Eisenbahningenieur, Juni, S. 172.
RUMMEL (D.). — **Neue Hochbauten** der Bundesbahndirektion Frankfurt (M.). (1 500 Wörter & Abb.)

1960 **625** .1 (43)
Der Eisenbahningenieur, Juni, S. 177.
KUCKUCK (K.-H.). — **Eisenbahnplanungen im Raum Frankfurt** (Main). (4 000 Wörter & Abb.)

1960 **656** .281
Der Eisenbahningenieur, Juni, S. 185.
KRUGMANN (H.-L.). — **Untersuchung von Entgleisungen in schwierigen Fällen.** (6 000 Wörter & Abb.)

1960 **625** .113
Der Eisenbahningenieur, Juni, S. 194.
LIST (S.). — **Bogenabsteckungen nach dem Nalenzverfahren** mit gerechnetem Summenbild. (1 200 Wörter & Abb.)

E.T.R. - Eisenbahntechnische Rundschau. (Köln-Darmstadt.)

1960 **725** .31 (43)
Eisenbahntechnische Rundschau, Juni, S. 229.
HOFFMANN (E.). — Die **neue Bahnsteighalle, München Hauptbahnhof.** (7 500 Wörter & Abb.)

1960 **62** (01 & **625** .212
Eisenbahntechnische Rundschau, Juni, S. 245.
SCHRODT (H.). — **Werkstoffprüfung mit Ultraschall bei der Deutschen Bundesbahn, insbesondere in der Anwendung bei Fahrzeugachsen.** (4 000 Wörter & Abb.)

1960 **625** .1 (43)
Eisenbahntechnische Rundschau, Juni, S. 256.
CIESIELSKI (H.). — **Neue Brückenkonstruktionen** aus Anlass der Elektrifizierung der Vorortstrecke Hamburg - Hamburg-Bergedorf. (5 700 Wörter & Abb.)

Elektrische Bahnen. (München.)

1960 **621** .332
Elektrische Bahnen, Heft 6, S. 121.
KROLL (U.). — Beitrag zur **Entwicklungsgeschichte der Fahrleitungen für Einphasenwechselstrom in Europa.** (9 500 Wörter & Abb.)

1960 **625** .212
Elektrische Bahnen, Heft 7, S. 141.
BUDDENSIEK (H.). — Das **Unterflurdrehen der Radsätze von Schienentriebfahrzeugen.** (10 000 Wörter & Abb.)

1960 **621** .317
Elektrische Bahnen, Heft 7, S. 158.
SCHRÖTER (G.). — **Ermittlung der Übertemperatur aus Widerstandsmessungen bei Ankerwicklungen mit Ausgleichleitern.** (4 200 Wörter & Abb.)

Elektrotechnik und Maschinenbau. (Wien.)

1960 **621** .31
Elektrotechnik und Maschinenbau, 1. Juli, S. 301.
LOH (O.). — Ein **Vergleich von Drehstromschützen** mit 3×4, 1×4 plus 2×2 und 3×2 Unterbrecherstellen. (3 500 Wörter & Abb.)

E.T.Z. Elektrotechnische Zeitschrift. (Berlin.)

1960 **621** .31
E.T.Z., 11. Juli, S. 333.
BAATZ (H.). — **Anspritzen von Hochspannungsleitungen mit Feuerlöschrohren.** (4 500 Wörter & Abb.)

1960 **621** .31
E.T.Z., 25. Juli, S. 360.
EBINGER (A.). — Verfahren und Geräte zur genauesten **Strom-, Spannungs- und Leistungsmessung bei Wechselstrom.** (1 450 Wörter & Abb.)

1960 **621** .31
E.T.Z., 8. August, S. 381.
SCHRÖTER (Fr.). — Der **Bürstenverschleiss auf Kleinmaschinen.** (5 600 Wörter & Abb.)

Europa Verkehr. (Darmstadt.)

1960 **625** .28
Europa Verkehr, Nr 2, S. 75.
KOTHER (H.). — Der **Einfluss des Strukturwandels auf den Energieverbrauch der Verkehrsmittel.** (1 000 Wörter & Abb.)

1960 **625** .245
Europa Verkehr, Nr 2, S. 87.
ZÜHN (W.). — **Eisenbahnwagen zur Beförderung von Gasen.** (1 500 Wörter & Abb.)

1960 **625** .14 (43)
Europa Verkehr, Nr 2, S. 95.
DOLL (A.). — **Neuzeitliche Technik des Gleisbaus** bei der Deutschen Bundesbahn. (4 000 Wörter, Tafeln & Abb.)

1960 **621** .436
Europa Verkehr, Nr 2, S. 114.
PAUL (A.). — **Schnellaufende Verbrennungs-Kraftmaschinen** als Antriebsmittel für Schienen- und Wasserfahrzeuge. (4 000 Wörter & Abb.)

Glasers Annalen. (Berlin.)

1960 **625** .282
Glasers Annalen, Juni, S. 185.
BÖHM (F.). — Der **Schleudervorgang beim Anfahren und Rangieren mit dieselhydraulischen, kardanwellengetriebenen Lokomotiven.** (4 000 Wörter & Abb.)

1960 **625** .282 (43)
Glasers Annalen, Juni, S. 194.
FRIEDRICH (K.) und FÜRST (W.). — Die **Nebenbahn-Diesellokomotive V 100** der Deutschen Bundesbahn. (*Schluss folgt.*) (5 000 Wörter & Abb.)

1960 **625** .282 (68)
Glasers Annalen, Juni, S. 204.
SAUER (K.-H.). — **Dieselhydraulische Lokomotiven von 1 420 PS** für Südafrika. (1 500 Wörter & Abb.)

1960 **625** .283
Glasers Annalen, Juni, S. 208.
ZIEBART (E.). — Ein **Hochleistungsprüfstand für Lokomotiv-Getriebe.** (1 500 Wörter & Abb.)

1960 **625** .282 (81
Glasers Annalen, Juni, S. 211.
FEUSTEL (H.). — Zweijährige Erfahrungen mit einer **2 000 PS Deutz-dieselhydraulischen Lokomotive** auf der Gebirgsbahn Oslo-Bergen in Norwegen. (3 000 Wörter & Abb.)

1960 **625** .282 (47 .1)
Glasers Annalen, Juni, S. 219.
BROKMANN (F.). — **1 909 PS-Diesel-Generator-Gruppe für Diesellokomotiven** der Finnischen Staatsbahn. (2 500 Wörter & Abb.)

1960 **625** .213
Glasers Annalen, Juni, S. 225.
FAHLBUSCH (H.) und HOFER (F.). — Die **Problematik der Luftfederung im Schienenfahrzeugbau.** (*Fortsetzung folgt.*) (4 000 Wörter & Abb.)

1960 **625** .282
Glasers Annalen, Juni, S. 233.
HEIDENHEIM (F.K.). — Zur Frage der **Kraftübertragung für Diesellokomotiven** grösserer Leistung. (2 500 Wörter & Abb.)

Schweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik. (Zürich.)

1960 **385** .1 (494)
Schweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, Nr 2, S. 97.
RUCHTI (E.). — **Subvention oder was sonst?** (5 600 Wörter & Tabellen.)

1960 **656** .2 (47 .1)
Schweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, Nr 2, S. 132.
PASZKOWSKI (F.). — Die **Eisenbahnen Finnlands.** (6 000 Wörter, Tabellen und Karte.)

Signal und Draht. (Frankfurt am Main.)

1960 **656** .257 (43)
Signal und Draht, Juli, S. 117.
STEINFELD (H.). — Das **Spurplanstellwerk Saarbrücken Hbf.** (1 500 Wörter & Abb.)

1960 **656** .257 (43)
Signal und Draht, Juli, S. 122.
UNSER (W.). — **Gleisbildstellwerksanlage Bahnhof Bruchsal.** (2 500 Wörter & Abb.)

Verkehr. (Wien.)

1960 **656** .225 (4)
Verkehr, 2. Juli, S. 905.
SCHRADER (G.). — **Huckepackverkehr aus europäischer Sicht.** (2 500 Wörter & Abb.)

Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden. (Dresden.)

1959-60 **656** .254
Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden, Heft 2, S. 270.
POTTHOFF (G.). — Der **zeitliche Ablauf eines Fernschreibverkehrs.** (3 500 Wörter & Abb.)

1959-60 **656** .225
Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden, Heft 2, S. 293.
KURZ (H.). — **Zur Frage des Grossblocktransports auf Paletten.** (2 000 Wörter & Abb.)

1959-60 **621** .431 .72
Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden, Heft 2, S. 299.
HOCHMUTH (A.). — **Rechnerische Ermittlung der fahrzeugenergetischen Kennfelder für Dieseltriebfahrzeuge** in der Eisenbahnzugförderung. (4 000 Wörter & Abb.)

1959-60 **656** .2
Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden, Heft 2, S. 343.
SCHRÖDER (H.). — **Elektronische Verfahren** zur Beschleunigung und Automatisierung des Eisenbahnverkehrs. (5 000 Wörter & Abb.)

1959-60 **656** .25
Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden, Heft 2, S. 357.
MÜLLER (W.). — **Einige komplexe Forschungsaufgaben auf dem Gebiet der Eisenbahnsicherungstechnik.** (7 000 Wörter & Abb.)

1959-60 **656** .225
Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden, Heft 2, S. 451.
KEIL (H.) und WIDERSTEIN (K.). — **Frachtrechtliche und tarifliche Grenzen zwischen Wagenladungen und Kleinsendungen des Güterverkehrs.** (5 000 Wörter, Tabellen & Abb.)

1959-60 **656** .2
Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden, Heft 2, S. 553.
POTTHOFF (G.). — **Kybernetik im Verkehrswesen.** (1 500 Wörter.)

In English.

Bulletin, American Railway Engineering Association. (Chicago.)

1960 **624** (01 (73)
Bulletin, American Railway Engineering Association, June-July, p. 1.
Tests of continuous steel bridges on the Southern Pacific. (58 pages, illustrated.)

Electric Traction on the Railways. (Brussels.)

1960 **621** .314
Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 6, June, p. 261.
HILSENBECK (K.). — The working of **transductors,** semiconductor **rectifiers** and **transistors.** (8 500 words & fig.)

1960 **621** .314
Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 6, June, p. 283.
SCHUISKY (W.). — Determination of the heating of **electrical machines** and **transformers** by using the thermal circuit. (5 200 words & fig.)

1960 **621** .335 (47)
Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 6, June, p. 295.
CAIRE (D.). — The French Alsthom and MTE (Sfac-Jeumont-SW) Companies have just delivered to the Russian Railways the first of the **50 CC type** 6 000 HP **locomotives** ordered in September 1957. (6 200 words & fig.)

The Engineer. (London.)

1960 **656** .2 (42)
The Engineer, May 13, p. 825.
British Railways Modernisation. (1 900 words.)

1960 **621** .431 .72 (47)
The Engineer, May 27, p. 917.
Heavy Diesel shunting engine. (2 600 words & figs.)

1960 **621** .131 .3 (42)
The Engineer, June 10, p. 975.
NOCK (O.S.). — **" Merchant Navy " locomotives : performance and efficiency tests** on Southern Region. (3 000 words, tables & fig.)

1960 **621** .335 (47)
The Engineer, June 17, p. 1027.
Fifty-cycle A.C. locomotives in Russia. (2 200 words & figs.)

1960 **625** .2
The Engineer, July 1, p. 26; July 15, p. 117.
Aluminium alloys in railway rolling stock. (5 000 words, tables & figs.)

1960 **621** .431 .72 (42)
The Engineer, July 1, p. 29.
Diesel-electric Pullman trains. (2 400 words & figs.)

Engineering. (London.)

1960 **625** .144 .1 (42)
Engineering, June 17, p. 832.
Benefits that come from welded track. (1 400 words & figs.)

Gas and Oil power. (London.)

1960 **621** .431 .72 (42)
Gas and Oil power, July, p. 147.
Business man's express. (3 400 words & figs.)

Indian Railways. (New-Delhi.)

1960 **621** .431 .72 (54)
Indian Railways, June, p. 394.
SINGH (K.). — **Young railway engineer puts India on world railway map.** (400 words.)

1960 **621** .431 .72 (54)
Indian Railways, June, p. 395.
SURI (M.). — **Historic major invention named "Suri-transmission".** (800 words.)

Proceedings of the Institution of Civil Engineers. (London.)

1960 **625**
Proceedings, The Institution of Civil Engineers, June, p. 209.
DEAN (A), CHALMERS (P.) and LAYHE (A.C.). — **The mechanization of railway civil engineering maintenance work.** (11 pages, illustrated.)

The Institution of Locomotive Engineers. (London.)

1960 **625** .2
Journal, The Institution of Locomotive Engineers, Vol. 49, Part No. 6, p. 665.
BROCKWAY (K.P.). — **Aluminium technology and railway rolling stock.** (95 pages, illustrated.)

1960 **625** .215
Journal, The Institution of Locomotive Engineers, Vol. 49, Part No. 6, p. 771.
TOPHAM (W.L.). — **Methods of reducing flange-wear on Diesel and electric bogie locomotives.** (51 pages, illustrated.)

The Journal of the Institute of Transport. (London.)

1960 **625** .13
The Journal of the Institute of Transport, June, p. 303.
CAMERON (M.A.). — **The Channel tunnel.** (2 800 words.)

Japanese Railway Engineering. (Tokyo.)

1960 **625** .172 (52)
Japanese Railway Engineering, June, p. 3.
ONOGI (J.). — **Statistical control of track maintenance.** (1 800 words & figs.)

1960 **621** .338 (52)
Japanese Railway Engineering, June, p. 6.
FUKUZAKI (N.). — **Electric rolling stock for A.C. traction.** (2 000 words & figs.)

1960 **656** .25 (52)
Japanese Railway Engineering, June, p. 10.
NOGI (T.). — **Centralized remote control of sub-stations on the J.N.R.** (2 000 words & figs.)

1960 **621** .33 (52)
Japanese Railway Engineering, June, p. 28.
Silicon rectifiers for electric railway. (1 000 words & fig.)

Modern Railroads. (Chicago.)

1960 **625** .172 (73)
Modern Railroads, July, p. 65.
Small railroad solves M/W problem. (1 600 words & figs.)

Modern Transport. (London.)

1960 **621** .33 (42)
Modern Transport, March 5, p. 10.
25 kV railway electrification. — Safety demonstration of overhead system. (200 words & fig.)

1960 **625** .2
Modern Transport, June 4, p. 3; June 11, p. 5.
Aluminium in railway rolling stock. (3 500 words.)

1960 **625** .245 : **656** .28 (42)
Modern Transport, June 11, p. 6.
Breakdown cranes for British Railways. (1 000 words & fig.)

1960 **621** .431 .72 (6)
Modern Transport, June 18, p. 5; July 5, p. 6.
Nigerian Diesel railcars. (3 600 words & figs.)

1960 **656** .212 (42)
Modern Transport, June 25, p. 3.
Railway rationalisation at Barnsley. (2 000 words & figs.)

1960 **621** .431 .72 (42)
lodern Transport, June 25, p. 7.
Self-contained Diesel Pullman trains. (2 400 words figs.)

Railway Engineering. (Cape Town.)

1960 **621** .335 (68)
ailway Engineering, June, p. 43.
Bo-Bo electric units for 3 000 V D.C. system. (6 00 ords & fig.)

The Railway Gazette. (London.)

1960 **624**
ıe Railway Gazette, June 10, p. 676.
High strength bolts in railway bridges. (600 words.)

1960 **656** .257 (42)
ıe Railway Gazette, June 10, p. 681.
Signalling improvements at Amersham, L.T.E. (1 200 ords & fig.)

1960 **621** .438 (47)
ıe Railway Gazette, June 10, p. 683.
First Soviet gas-turbine locomotive. (700 words & fig.)

1960 **621** .138 (42)
ıe Railway Gazette, June 10, p. 685.
PETTY (F.H.). — The **changing pattern of motive ower** in the North Eastern Region. (2 000 words & fig.)

1960 **656** .28 (42)
ıe Railway Gazette, June 10, p. 693.
Ministry of Transport accident report. Smedley aduct Signalbox, near Manchester, October 15, 1959. 500 words & fig.)

1960 **621** .431 .72 (42)
ıe Railway Gazette, June 17, p. 710.
Diesel-powered parcels vans for British Railways. 00 words & figs.)

1960 **625** .245 (73)
ıe Railway Gazette, June 17, p. 712.
Air-operated tipping wagon. (400 words & figs.)

1960 **656** .212 .5 (42)
ıe Railway Gazette, June 17, p. 713.
Proposed marshalling yards at Shrewsbury and loucester. (1 800 words & figs.)

1960 **621** .431 .72 (941)
ıe Railway Gazette, June 24, p. 737.
Western Australian Diesel-electric locomotive. (500 ords & fig.)

1960 **625** .13 (73)
ıe Railway Gazette, June 24, p. 738.
Strengthening tunnel lining with steel plate. (400 words figs.)

1960 **625** .162 (42)
The Railway Gazette, June 24, p. 739.
Lifting barriers at Courtybella crossing, Newport (Mon.). (800 words & figs.)

1960 **621** .431 .72 (42)
The Railway Gazette, June 24, p. 741.
British Railways Diesel-electric Pullman trains. (2 800 words & figs.)

1960 **621** .431 .72 (42)
The Railway Gazette, July 1, p. 13.
Testing Diesel-electric shunting locomotives. (900 words & figs.)

1960 **621** .33 & **653**
The Railway Gazette, July 1, p. 16.
GILMOUR (A.). — **The digital computer and traction problems.** (2 400 words & figs.)

1960 **385** (42)
The Railway Gazette, July 8, p. 42.
British Transport Commission results for 1959. (1 600 words & tables.)

1960 **656** .25 (42)
The Railway Gazette, July 8, p. 48.
STAVELEY (G.). — **Signalling and telecommunications developments in the North Eastern Region.** (2 800 words & figs.)

Diesel Railway Traction. (London.)

1960 **621** .431 .72 (47)
Diesel Railway Traction, May, p. 167.
Austrian-built freight-transfer locomotives. (3 800 words & figs.)

1960 **625** .234
Diesel Railway Traction, May, p. 173.
Air-conditioning for Diesel trains. (4 900 words & figs.)

1960 **621** .431 .72 (47)
Diesel Railway Traction, May, p. 181.
Diesel traction in the U.S.S.R. (11 000 words & figs.)

1960 **621** .335
Diesel Railway Traction, May, p. 197.
Electric transmission. (900 words & fig.)

1960 **621** .431 .72 (42)
Diesel Railway Traction, June, p. 207.
British Railways modernisation. (1 900 words & fig.)

1960 **621** .431 .72 (4359)
Diesel Railway Traction, June, p. 211.
Diesel motive power in Luxembourg. (4 200 words & figs.)

1960 **621** .431 .72
Diesel Railway Traction, June, p. 221.
Cardan shaft design and performance. (6 200 words & figs.)

1960 **621** .431 .72 (45)
Diesel Railway Traction, June, p. 229.
Recent Italian Diesel locomotives. (900 words & figs.)

1960 **621** .431 .72 (42)
Diesel Railway Traction, June, p. 231.
Development of British shunting power. (2 600 words & figs.)

Railway Locomotives and Cars. (New York.)

1960 **621** .431 .72 (73)
Railway Locomotives and Cars, June, p. 25.
U 25 B : GE 2 500 HP road switcher. (2 800 words & figs.)

1960 **621** .431 .72 (73)
Railway Locomotives and Cars, June, p. 35.
For SP and D & RGW locomotives... hydraulic drive and 2 000 HP Diesel. (1 200 words & figs.)

1960 **625** .236 (73)
Railway Locomotives and Cars, June, p. 42.
CNR speeds car exterior cleaning. (1 100 words & figs.)

1960 **625** .212
Railway Locomotives and Cars, July, p. 30.
What causes wheel tread defects ? (*To be continued.*) (1 000 words & figs.)

The Railway Magazine. (London.)

1960 **656** .25 (494)
The Railway Magazine, April, p. 281.
Transportable signalboxes in Switzerland. (900 words & figs.)

1960 **621** .138 .5 (42)
The Railway Magazine, July, p. 460.
MOULTON (F.). — **Changing from steam to Diesel construction in a locomotive work.** (1 000 words & figs.)

1960 **656** .25 (42)
The Railway Magazine, August, p. 539.
Margam marshalling yard. (2 000 words & figs.)

Railway Signaling and Communications. (New York.)

1960 **625** .162 (73)
Railway Signaling and Communications, May, p. 19.
O'HALLORAN (P.J.). — **CNR uses speed selection for gates.** (1 800 words & figs.)

1960 **625** .4 (73)
Railway Signaling and Communications, June, p. 19.
Subway trains route themselves. (1 400 words & figs.)

1960 **656** .25 (73)
Railway Signaling and Communications, July, p. 23.
The economics of data communications. (2 000 words & figs.)

Railway Track and Structures. (Chicago.)

1960 **625** .144 .1 (73
Railway Track and Structures, June, p. 23.
Butt-welding plants at rolling mills. (1 900 word & figs.)

1960 **625** .13 (73
Railway Track and Structures, July, p. 23.
Get more **clearance** in 85-year-old **Milwaukee tunne by cutting down 2 ft.** (1 600 words & figs.)

1960 **625** .13 (73
Railway Track and Structures, August, p. 21.
Tunnel work... extensive need for repairs, more clear ance spurs activity. (2 600 words & figs.)

In Spanish.

Ferrocarriles y Tranvias. (Madrid.)

1960 **625** .11
Ferrocarriles y Tranvias, Vol. 26-V, nº 296, p. 94.
ALIX ALIX (L.). — Más observaciones objetiva sobre el **peralte en las curvas de ferrocarriles** y otra sobre los aparatos de desvío en curva hacia la conca vidad. (2 100 palabras & fig.)

1960 **625** .232 (460
Ferrocarriles y Tranvias, Vol. 26-V, nº 296, p. 102.
Coches serie 400 del Metropolitano de Barcelona (900 palabras & fig.)

1960 **385** (09 .3 (460
Ferrocarriles y Tranvias, Vol. 26-V, nº 297, p. 120.
TORTOSA (M.). — **Algunas fechas históricas de los ferrocarriles españoles.** (2 500 palabras & mapa.)

In Hungarish (= 494.511).

Közlekedèstudományi Szemle. (Budapest.)

1959 **656** .256 .3 = 494 .51
Közlekedèstudományi Szemle, juin, p. 316.
FISCHER (K.). — Le problème des installations d **block automatique**; proposition d'un nouveau système (3 900 mots, tableau & fig.)

1959 **656** .21 = 494 .51
Közlekedèstudományi Szemle, août, p. 342.
TURANYI (I.). — Les possibilités d'**application de la cybernétique à l'exploitation ferroviaire.** (3 700 mots & tableau.)

1959 **625** .143 .3 = 494 .51
Közlekedèstudományi Szemle, août, p. 349.
CZITARY (E.). — Contribution au problème de l'**usure ondulatoire des rails.** (2 800 mots, tableaux & fig.)

1959 **625** .245 = 494 .511
Közlekedèstudományi Szemle, août, p. 365.
SZALONTAY (V.). — L'efficacité économique de l'emploi de **wagons à déchargement automatique.** (3 800 mots, tableau & fig.)

In Italian.

Alluminio. (Milano.)

1960 **625** .4 (44)
Alluminio, n° 6, p. 309.
Nuova metropolitana sospesa, installata a Châteauneuf-sur-Loire. (1 300 parole, tabelle & fig.)

Ingegneria Ferroviaria. (Roma.)

1960 **625** .213
Ingegneria Ferroviaria, giugno, p. 483.
BIANCHEDI (R.). — **Sospensioni pneumatiche.** (4 000 parole & fig.)

1960 **725** .31 (45)
Ingegneria Ferroviaria, giugno, p. 491.
PULGA (P.). — La **nuova stazione** di Milano Porta Nuova. (3 500 parole & fig.)

1960 **656** .2 (494)
Ingegneria Ferroviaria, giugno, p. 499.
INTRONA (S.). — **Nuovi orientamenti delle Ferrovie Federale Svizzere.** (5 000 parole, tabelle & fig.)

1960 **621** .33 (45)
Ingegneria Ferroviaria, giugno, p. 511.
GARGIULO (A.). — **Elettrificazione** della linea Ancona-Pescara. (4 000 parole & fig.)

Trasporti Pubblici. (Roma.)

1960 **621** .335 (45)
Trasporti Pubblici, maggio, p. 751.
DARD (M.). — Gli **elettrotreni della serie ETR 250.** (1 200 parole & fig.)

1960 **621** .33 (45)
Trasporti Pubblici, maggio, p. 755.
Le **origini della trazione elettrica in Italia** e l'esperimento a corrente trifase 3 400 volts a 15 periodi. (2 000 parole & fig.)

In Netherlands.

Spoor- en Tramwegen. (Den Haag.)

1960 **621** .335 (44)
Spoor- en Tramwegen, nr 13, 30 juni, p. 231.
VAN DEN DOOL (W.H.). — **Lichte elektrische locomotieven voor gelijkstroom 1 500 V serie BB 9400** van de S.N.C.F. (1 600 woorden & fig.)

1960 **625** .17 (73)
Spoor- en Tramwegen, nr 13, 30 juni, p. 234.
Spoorwegonderhoud in Amerika. (1 000 woorden & fig.)

1960 **385** (8)
Spoor- en Tramwegen, nr 13, 30 juni, p. 243.
De **internationale spoorwegverbindingen over de Cordillera de los Andes.** (900 woorden & kaart.)

1960 **656** (494)
Spoor- en Tramwegen, nr 14, 14 juli, p. 247.
HOOFTMAN (J.C.). — **Verkehrshaus der Schweiz.** Een expositie die niemand mag missen. (1 400 woorden & fig.)

1960 **385** (09 .3 (493)
Spoor- en Tramwegen, nr 14, 14 juli, p. 249.
WEEMAELS (F.). — 125 jaar geleden... De **eerste Belgische openbare spoorweg.** (1 200 woorden & fig.)

1960 **621** .13 (42)
Spoor- en Tramwegen, nr 14, 14 juli, p. 256.
KARSKENS (J.J.). — **Locomotief nr 92250, de laatste in de werkplaats van de Britse spoorwegen te Crewe gebouwde stoomlocomotief.** (1 600 woorden & fig.)

1960 **625** .17
Spoor- en Tramwegen, nr 15, 28 juli, p. 263.
HAUER (J.M.). — Voortgezette **mechanisatie van het wegonderhoud.** (1 000 woorden & fig.)

1960 **656** .2 (4)
Spoor- en Tramwegen, nr 15, 28 juli, p. 267.
" A look at Europe's Railroads " (Maar een wel heel merkwaardige kijk...). (1 000 woorden.)

1960 **656** .224 (42)
Spoor- en Tramwegen, nr 15, 28 juli, p. 270.
Diesel Pullmantreinen bij de Britse Spoorwegen. (400 woorden & fig.)

1960 **625** .232 (47)
Spoor- en Tramwegen, nr 15, 28 juli, p. 272.
REESKAMP (J.H.E.). — **Moskou-Hoek van Holland zonder overstappen.** (*Wordt vervolgd.*) (1 000 woorden & fig.)

In Portuguese

Boletim da C.P. (Lisboa.)

1960 **625** .3 (494)
Boletim da C.P., n° 373, Julho, p. 15.
Caminhos de Ferro Particulares Suiços. (800 palavras & fig.)

Gazeta dos Caminhos de Ferro. (Lisboa.)

1960 **385** (09 .3 (469)
Gazeta dos Caminhos de Ferro, n° 1741, 1 de Julho, p. 135.
DE QUADROS ABRAGÃO (F.). — **No Centenário dos Caminhos de Ferro em Portugal.** Algunas notas sobre a sua historia. (*Continua.*) (4 200 palavras.)

In Rumanian (= 599).

Revista Cáilor Ferate. (Bucarest.)

1959 **656** .222 .4 = 599
Revista Cáilor Ferate, mars, p. 119.
TOMESCU (C.). — Construction du **graphique des trains** en considération de la corrélation entre la quantité des trains de voyageurs et des trains de marchandises. (4 200 mots, tableaux & fig.)

1959 **625** .142 .2 = 599
Revista Cáilor Ferate, mars, p. 127.
FLORIN (B.). — **Méthode de travail appliquée dans l'entretien et les réparations des traverses en bois.** (3 900 mots & tableaux.)

1959 **621** .8 : **621** .436 = 599
Revista Cáilor Ferate, mars, p. 131.
NUTĂ T. Marin et NUTĂ M. Dan. — **Transmission électrique ou hydraulique** dans la locomotive ? (4 500 mots & fig.)

1959 **625** .144 .1 = 599
Revista Cáilor Ferate, mars, p. 143.
DISLI (N.). — Problèmes de la **stabilisation de la voie à longs rails.** (5 300 mots & fig.)

1959 **656** .25 = 599
Revista Cáilor Ferate, avril, p. 175.
POP (J.). — Contribution des installations de sécurité à l'accroissement de la **sûreté du mouvement des trains.** (1 200 mots, tableaux & fig.)

1959 **62** (01 = 599
Revista Cáilor Ferate, avril, p. 200.
IONESCU-ZANE (N.). — Le **contrôle à l'aide des ultra-sons** des éléments à forme compliquée. (2 500 mots, tableau & fig.)

1959 **621** = 599
Revista Cáilor Ferate, avril, p. 204.
BRĂTESCU (V.). — Le **rôle des éléments incorporés pour l'amélioration de la qualité des pièces moulées.** (7 100 mots, tableaux & fig.)

In Russian (= 491.7).

Jeleznodoroznyï Transporte. (Moscou.)

1959 **625** .26 = 491 .7
Jeleznodoroznyï Transporte, juin, p. 14.
BESTZENNYÏ (W.I.). — Mécanisation complexe et automatisation dans la **réparation des wagons.** (2 800 mots & fig.)

1959 **621** .138 .1 = 491 .7
Jeleznodoroznyï Transporte, juin, p. 26.
YAREMYENKO (L.L.). — Appréciation des **indices d'exploitation des dépôts principaux** avec distances de service prolongées. (1 200 mots & fig.)

1959 **656** .211 .5 = 491 .
Jeleznodoroznyï Transporte, juin, p. 32.
BESTCHEVA (I.I.). — **Choix du type de quais d voyageurs sur les lignes de banlieue électrifiées.** (3 80 mots & tableaux.)

1959 **625** .14 = 491 .
Jeleznodoroznyï Transporte, juin, p. 47.
PERCHINE (S.P.). — Les problèmes de la **stabilit de la voie à longs rails.** (2 500 mots & fig.)

1959 **625** .143 .3 = 491 .
Jeleznodoroznyï Transporte, juin, p. 51.
LYSSENKO (I.M.). — Mesures à prendre pou améliorer l'utilisation des **défectoscopes** (détecteurs d défauts). (1 900 mots.)

1959 **656** .21 = 491 .
Jeleznodoroznyï Transporte, juin, p. 55.
STRYJ (N.I.). — **L'automatisation du travail de grandes gares ferroviaires.** (2 100 mots.)

1959 **625** .26 = 491 .
Jeleznodoroznyï Transporte, juin, p. 59.
FLEISHMAN (F.M.). — Quelques problèmes rela tifs à l'économie de la **production des ateliers de répa ration des wagons.** (1 400 mots & tableaux.)

1959 **656** .2 (438) = 491 .
Jeleznodoroznyï Transporte, août, p. 5.
STRZELECKI (R.). — La situation présente e l'avenir des **Chemins de fer Polonais.** (2 300 mots & carte.)

1959 **625** .28 (438) = 491 .
Jeleznodoroznyï Transporte, août, p. 9.
ZAJFRYD (M.). — **L'organisation des opération de transport** aux P.K.P. (Chemins de fer Polonais (2 700 mots, tableaux & fig.)

1959 **625** .282 (438) = 491 .
Jeleznodoroznyï Transporte, août, p. 15.
MLODECKI (W.). — **Les locomotives et leur aména gement** (aux P.K.P.). (2 000 mots & fig.)

1959 **625** .23 (438) = 491 .
& **625** .24 (438) = 491 .
Jeleznodoroznyï Transporte, août, p. 19.
NEUMANN (T.). — **L'aménagement des wagon** aux Chemins de fer de la République Populair Polonaise. (2 200 mots & fig.)

1959 **625** .14 (438) = 497 .
Jeleznodoroznyï Transporte, août, p. 24.
SOCHACKI (K.). — **L'aménagement de la voie au** Chemins de fer Polonais. (3 300 mots & fig.)

1959 **656** .25 (438) = 497 .
Jeleznodoroznyï Transporte, août, p. 31.
GORNY (J.). — **La sécurité du mouvement des train et les télécommunications** aux Chemins de fer Polonais (1 400 mots.)

1959 385 (07 .2 = 497 .1
eleznodoroznyï Transporte, août, p. 34.
KRZEMIENIECKI (A.). — **L'évolution des travaux cientifiques et des recherches** aux Chemins de fer Polo-ais. (1 800 mots & fig.)

1959 656 .225 = 497 .1
eleznodoroznyï Transporte, août, p. 51.
SITNIK (M.D.). — **Développement des transports ontainerisés** et choix des types de containers. (3 200 ots & fig.)

1959 656 .254 = 497 .1
eleznodoroznyï Transporte, août, p. 57.
BOGATCHEV (A.I.), GORCHOLEPOV (W.F.) et ANARSKAÏA (L.A.). — **Résultats de l'exploitation e sections par commande centralisée.** (2 600 mots & fig.)

1959 621 .335 = 497 .1
eleznodoroznyï Transporte, août, p. 63.
KOURTCHATOVA (W.A.) et KAPOUSTINE L.D.). — Résultats de l'**exploitation à titre expérimental 'un train automoteur** à freinage à récupération et sur ésistances. (1 900 mots & fig.)

Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta. (Moscou.)

1959 656 .2 (47) = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 3.
NYEDOPYEKINE (G.K.) et TROUBKHINE M.G.). — **Augmentation du rendement de travail et baissement du prix de revient des transports en 1959-965.** (2 800 mots.)

1959 656 .21 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 8.
PYETROV (A.P.). — Application des **calculateurs lectroniques** dans les transports ferroviaires. (5 100 mots & fig.)

1959 656 .22 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 19.
STOPUTCHEV (S.G.). — Fixation d'une variante ptimale du **plan de formation des itinéraires techniques e groupe unique.** (2 700 mots & fig.)

1959 625 .144 .4 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 24.
KOSITCHOUK (P.G.). — Principes théoriques de la **rectification des courbes ferroviaires** par les mécanismes d'égalisation. (2 700 mots & fig.)

1959 625 .151 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 30.
KOTYOUKOV (I.A.). — Sur la forme de la **courbe de déplacement des aiguilles aux vitesses de mouvement élevées.** (2 200 mots & fig.)

1959 625 .251 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 35.
VOUKOLOV (L.A.). — Prise en considération, dans le choix des **matériaux des sabots de freins,** des oscillations conditionnées par le frottement. (1 200 mots & fig.)

1959 621 .135 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 38.
CHESTYAKOV (V.N.). — Détermination des **pressions latérales des locomotives électriques et diesel dans les sections courbes de la voie.** (2 200 mots & fig.)

1959 621 .436 = 491 .7
Viestnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, n° 4, juin, p. 48.
BARKOVSKY (Y.B.). — Elimination de la disproportion cyclique de la **fourniture de combustible aux cylindres de moteurs diesel.** (2 300 mots & fig.)

In Swedish. (= 439 .71.)

Järnvägs-Teknik. (Stockholm.)

1960 621 .335 (485) = 439 .71
Järnvägs-Teknik, n° 4, p. 85.
ODÉN (R.) et CARNSJÖ (L.). — **Nouvelles rames électriques allégées des S.J.** (4 000 mots & fig.)

M. Weissenbruch & Co., Ltd., Printer to the King, 49, rue du Poinçon, Bruxelles.

MONTHLY BIBLIOGRAPHY OF RAILWAYS[1]

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[016. 385 (02]

I. — BOOKS.

In French.

1960 624 (06

SSOCIATION INTERNATIONALE DES PONTS T CHARPENTES.

Publication préliminaire du 6e Congrès (Stockholm, 7 juin-1er juillet 1960).

Zurich, Leemann, éditeur. Un volume (17 × 24.5 cm) e 928 pages avec 391 figures. (Prix : 70 fr. suisses.)

1959 656 .281

ERESZTY (P.).

La capacité de gauchissage des véhicules de chemin de r (Etude pratique des déraillements).

Budapest 62, Acta Technica, Postafiók 440. 3 fascicules 6.5 × 24.5 cm) d'un total de 116 pages avec 41 figures.

1960 691

LEINLOGEL (A.).

Les joints de dilatation dans la construction en béton et éton armé.

Traduit de la 5e édition allemande par H. JACOT. Paris (5e), Eyrolles, éditeur, 61, boulevard Saint-ermain. Un volume (16 × 25 cm) de 384 pages avec 30 figures. (Prix : 55 NF.)

In German.

1960 347 .763 .4 (43)

ie Eisenbahnen im deutschen öffentlichen Recht.

Herausgegeben unter Mitwirkung von Bundesbahn-risten von W. HAUSTEIN.

Frankfurt/Main, Verlag Verkehrswissenschaftliche ehrmittelgesellschaft. 565 Seiten. (Preis : DM 58.—.)

1960 625 .28

Elsners Taschenbuch für den maschinentechnischen Eisenbahndienst.

Frankfurt (Main), Dr. Arthur Tetzlaff-Verlag. 400 Seiten Taschenformat, mit 200 Bildern, Tafeln und Tabellen. (Preis : DM 6.—.)

1960 62 (02

Prof. Dr.-Ing. J. SZABÓ.

HÜTTE, Mathematische Formeln und Tafeln.

Berlin, Verlag Wilhelm Ernst & Sohn. 288 Seiten DIN A5, mit 142 Abbildungen und 34 Tafeln. (Preis : Ganzleinen, DM. 19.80.)

1960 347 .763

Dr. jur. Theodor KREBS.

Verkehrsrecht und Verkehrswirtschaft.

Berlin/Göttingen/Heidelberg, Springer Verlag. 329 Seiten. (Preis : Ganzleinen, DM 31.50.)

1959 62 (01

Prof. Dr.-Ing. habil. Horst MÜLLER.

Elastizitäts- und Festigkeitslehre. *2. Auflage.*

Bremen, Verlag Georg Westermann. 264 Seiten DIN C5, 287 Abbildungen und 30 Tafeln. (Preis : Leinen, DM 21.80.)

In English.

1960 625

PEARSON (H.M.).

Railway Works Construction.

One volume (8 3/4 × 5 3/4 in.) of 304 pages, illustrated with photographs and diagrams.

London : Adhams Press Limited, Long Acre, W.C.2. (Price : 35 s.)

---

(1) The numbers placed over the title of each book are those of the decimal classification proposed by the Railway Congress njointly with the Office Bibliographique International, of Brussels, (See « Bibliographical Decimal Classification as applied to Railway ience », by L. WEISSENBRUCH, in the number for November 1897, of the *Bulletin of the International Railway Congress* p. 1509).

[016 .385 (05]

II. — PERIODICALS.

In French.

Acier - Stahl - Steel. (Bruxelles.)

1960 **624** (52)
Acier - Stahl - Steel, septembre, p. 373.
TAKABEYA (F.). — Un exemple japonais de **pont en portique à nœuds rigides.** (500 mots & fig.)

Annales des Ponts et Chaussées. (Paris.)

1960 **624**
Annales des Ponts et Chaussées, juillet-août, p. 495.
DEMONSABLON (Ph.). — Le **calcul des piles déformables avec appuis en caoutchouc.** (15 000 mots, tableaux & fig.)

Bulletin de l'Office de Recherches et d'Essais de l'U.I.C. (O.R.E.)

1960 **621** .336
Bulletin de l'O.R.E., juillet, p. 10.
Comportement des pantographes et de la caténaire aux grandes vitesses. (1 200 mots & fig.)

1960 **625** .216
Bulletin de l'O.R.E., juillet, p. 12.
Tampons à grande capacité d'absorption de travail. (2 500 mots, tableaux & fig.)

1960 **625** .28
Bulletin de l'O.R.E., juillet, p. 20.
Economie de traction. Performances, dépenses et économies réalisées par l'utilisation de locomotives Diesel et électriques. (1 200 mots & fig.)

Bulletin de l'Union Internationale des Chemins de fer. (Paris.)

1960 **656** .1 (06 (4)
Bull. de l'Union Intern. des Chemins de fer, juillet-août, p. 204.
WANSINK. — L'**Union des Services Routiers des Chemins de fer Européens** a dix années d'existence. (1 000 mots.)

1960 **385** .113 (4)
Bull. de l'Union Intern. des Chemins de fer, juillet-août, p. 207.
Les **Chemins de fer en 1959.** (Belgique, Luxembourg, Norvège.) (3 000 mots & fig.)

C.F.F. (Berne.)

1960 **621** .431 .72 (49
C.F.F., septembre, p. 8.
HODEL (W.). — Le **tracteur de manœuvre dies Tm 307** et suivants. (800 mots & fig.)

Echos des Communications. (Bruxelles.)

1960 **656** .225 (49
Echos des Communications, nº 2, p. 87.
SOCIÉTÉ NATIONALE DES CHEMINS DE FE BELGES : **Evolution du trafic des marchandises au cou de l'année 1959.** (1 500 mots, tableaux & fig.)

Génie Civil. (Paris.)

1960 **66**
Génie Civil, nº 3524, 15 septembre, p. 384.
ROOSS (A.). — **L'évolution récente des théories de métaux.** (3 000 mots & fig.)

Rail et Traction. (Bruxelles.)

1960 **621** .335 (48
Rail et Traction, juillet-août, p. 257.
VAN GEEL (P.). — **Nouvelle rame automotrice légèr** des Chemins de fer Suédois. (700 mots & fig.)

Revue Générale des Chemins de fer. (Paris

1960 **656** .224 (4
Revue Générale des Chemins de fer, septembre, p. 44
MARTEAU. — Le développement des **Services d couchettes** sur la S.N.C.F. (1 200 mots & fig.)

1960 **625** .15 (4
Revue Générale des Chemins de fer, septembre, p. 44
LÉVI (R.) & ROUSSE (R.). — Les **perfectionnement récents des appareils de voie** sur la S.N.C.F. (4 000 mo & fig.)

1960 **625** .2 (4
Revue Générale des Chemins de fer, septembre, p. 45
BULTÉ (J.) et LAMOUROUX (R.). — **Emploi de matériaux plastiques dans la construction du matéri roulant** de la S.N.C.F. (3 000 mots & fig.)

1960 **656** .254 (4
Revue Générale des Chemins de fer, septembre, p. 46
JAMET et MARIE. — La **gestion du matériel de signa lisation, de téléphonie et de force-lumière** utilisé en vue d l'électrification Est-Paris. (4 000 mots & fig.)

1960 **385** (09 (44)
evue Générale des Chemins de fer, septembre, p. 474.
DARGEOU (Ph.). — **La situation actuelle de la N.C.F.** Progrès techniques réalisés. (8 000 mots.)

1960 **625** .13 (44)
evue Générale des Chemins de fer, septembre, p. 497.
Un appareil à relever le profil des ouvrages souterrains. 00 mots & fig.)

---

a Traction Electrique dans les Chemins de fer. (Bruxelles.)

1960 **621** .8
ılletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 7, juillet, p. 329.
ZIEBART (E.). — Principes des transmissions et ractéristiques hydrodynamiques et leur intérêt pour ntraînement des véhicules de chemin de fer. (7 000 ots & fig.)

1960 **621** .332
ılletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 7, juillet, p. 352.
HAUSMANN et DANGEL. — Connexions de rail our le **retour du courant** de traction sur les **lignes élec-fiées** dotées de circuits de voie. (2 300 mots & fig.)

1960 **625** .232 (44)
ılletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 7, juillet, p. 360.
PARÈS et PALATRE. — **Equipement des rames** de la nlieue Nord de la S.N.C.F. en vue de leur remorque **traction électrique** à courant monophasé 25 000 volts. 950 mots & fig.)

1960 **625** .234 (44)
ılletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 7, juillet, p. 368.
MIGNON. — Les installations fixes de préchauffage ctrique et d'essais de **chauffage des rames à voyageurs** r la ligne Paris-Lille, électrifiée en monophasé 25 kV. 350 mots & fig.)

1960 **621** .33 (52)
ılletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 7, juillet, p. 373.
Electrification suivant deux systèmes au Japon. (1 400 ots & fig.)

Les Transports Publics. (Berne.)

1960 **656** .2
s Transports Publics, août, p. 3.
KASPAR (C.). — **L'application aux chemins de fer des ncipes d'analyse du marché.** (1 200 mots.)

1960 **621** .33 (494)
s Transports Publics, août, p. 10.
Les C.F.F. au terme de leur programme d'électrifi-tion. (500 mots & fig.)

La Vie du Rail. (Paris.)

1960 **621** .438 (44)
La Vie du Rail, 14 août, p. 3.
CASSY (M.). — **La 060 GA, nouveau type de locomotive à turbine à gaz** construit par la Régie Nationale des Usines Renault et la Compagnie des Aciéries et Forges de la Loire. (2 000 mots & fig.)

1960 **656** .212 .5 (44)
La Vie du Rail, 28 août, p. 16.
DAURELLE (Ch.). — **Le triage de Mourepiane.** (2 000 mots & fig.)

1960 **385** (09 (45)
La Vie du Rail, 4 septembre, p. 14.
Italie : les Chemins de fer du Sud-Est. (1 000 mots & fig.)

1960 **625** .282 (86)
La Vie du Rail, 11 septembre, p. 18.
CASSY (M.). — Les **locomotives Diesel-électriques Alsthom « BBB » de 1 220 ch** des Chemins de fer de l'Equateur. (500 mots & fig.)

In German.

Archiv für Eisenbahnwesen. (Berlin.)

1960 **341** .324 (43)
Archiv für Eisenbahnwesen, Heft 3, S. 306.
WACHTEL (F.). — Die **Eisenbahnen in der französischen Besatzungszone 1945-1952.** (16 000 Wörter & Karten.)

Die Bundesbahn. (Darmstadt und Köln.)

1960 **656** .2 (43)
Die Bundesbahn, Nr 13, Juli, S. 657.
OEFTERING (H.M.). — **Bundesbahn im Aufbruch zu neuen Zielen.** (4 000 Wörter.)

1960 **656** .222
Die Bundesbahn, Nr 13, Juli, S. 665.
KREIDLER (E.). — Planungsgrundsätze für die **Länge und Anordnung von Überholungsgleisen.** (4 000 Wörter & Abb.)

1960 **656** .2 (43)
Die Bundesbahn, Nr 13, Juli, S. 675.
BUDDENSIEK (H.) und BALLHORN (K.). — Der **Vorrichtungsbau bei der Deutschen Bundesbahn.** (7 000 Wörter & Abb.)

1960 **656** .254 (43)
Die Bundesbahn, Nr 13, Juli, S. 687.
SCHEPP (A.). — Über die Erlaubnis zur **Einrichtung von Funkanlagen und die Verteilung der Betriebsfrequenzen** bei der Bundesbahn. (2 000 Wörter & Abb.)

1960 **625** .236 (43)
Die Bundesbahn, Nr 14, Juli, S. 715 und 721.
MANCK (E.). — Die **maschinentechnischen Einrichtungen der neuen mechanischen Aussenreinigungsanlage für Reisezugwagen** beim Bww Augsburg. (3 000 Wörter & Abb.)

JANSON (K.). — **Betriebserfahrungen mit der mechanischen Aussenreinigungsanlage für Reisezugwagen** beim Bww Augsburg. (2 000 Wörter & Abb.)

1960 **625** .2 : **669** .71
Die Bundesbahn, Nr 14, Juli, S. 724.
Europäische Ausstellung von Aluminium-Eisenbahnfahrzeugen. (1 300 Wörter.)

1960 **385** .113 (4)
Die Bundesbahn, Nr 14, Juli, S. 730.
Die **Entwicklung bei westeuropäischen Eisenbahnverwaltungen** im Jahre 1959. (1 400 Wörter & Tafel.)

Deutsche Eisenbahntechnik. (Berlin.)

1960 **656** .222 .4
Deutsche Eisenbahntechnik, Juli, S. 318.
POTTHOFF (G.). — Die **Strecke mit Einrichtungsbetrieb.** (4 000 Wörter, Tafeln & Abb.)

1960 **621** .331 (43)
Deutsche Eisenbahntechnik, Juli, S. 327.
KOCH (H.). — Die **elektrische Zugförderung und ihre Energieversorgung** bei der Deutschen Reichsbahn. (3 000 Wörter & Abb.)

1960 **625** .232
Deutsche Eisenbahntechnik, Juli, S. 332.
MÜSSIG (W.). — **Neuer Speisewagen** für den internationalen Eisenbahnverkehr. (3 000 Wörter & Abb.)

1960 **625** .282
Deutsche Eisenbahntechnik, Juli, S. 337.
KREUTER (E.). — **Diesellokomotiven mit elektrischer und hydraulischer Übertragung.** (5 000 Wörter, Tafeln & Abb.)

1960 **656** .254 (43)
Deutsche Eisenbahntechnik, Juli, S. 346.
WESCHKE (H.). — Der **Einsatz von Trägerfrequenz-Einrichtungen im Fernsprechnetz** der Deutschen Reichsbahn. (4 000 Wörter, Tafeln & Abb.)

1960 **656** .212
Deutsche Eisenbahntechnik, Juli, S. 353.
GEBHARDT (R.). — Die **Neugestaltung der Güterverkehrsanlagen,** eine Folge der neuen Ladeorganisation im Stückgutknotenpunktverkehr. (*Fortsetzung folgt.*) (3 000 Wörter & Abb.)

1960 **625** .25
Deutsche Eisenbahntechnik, August, S. 370.
BOHUMIL FOŘT. — **Bremsversuche mit der DAKO-R-Bremse.** (3 500 Wörter & Abb.)

1960 **625** .144
Deutsche Eisenbahntechnik, August, S. 377.
ŠKACH (A.) und TĚHNIK (V.). — **Mechanisierung der Oberbauarbeiten,** insbesondere Kleinmechanisierung und Schotterbettreinigung mit Hilfe kleiner Räumgeräte. (3 500 Wörter & Abb.)

1960 **621** .332 (437
Deutsche Eisenbahntechnik, August, S. 383.
Technologie des Fahrleitungsbaus der Tschekkoslowakischen Staatsbahnen. (3 000 Wörter & Abb.)

1960 **625** .11
Deutsche Eisenbahntechnik, August, S. 389.
SACKMAUER (L.). — Die **Berechnung des lückenlosen Gleises.** (6 000 Wörter & Abb.)

1960 **624** ..
Deutsche Eisenbahntechnik, August, S. 398.
KOLOUŠEK (V.). — **Schwingungsprobleme an Eisenbahnbrücken.** (3 500 Wörter & Abb.)

1960 **622**
Deutsche Eisenbahntechnik, August, S. 405.
JEŘÁBEK (J.). — **Stosswirkungen auf Baukonstruktionen.** (4 500 Wörter & Abb.)

1960 **656** .254 (437
Deutsche Eisenbahntechnik, August, S. 413.
SUCHANEK (J.). — **Neues tschekoslowakisches System der punktförmigen Zugbeeinflussung.** (4 000 Wörter & Abb.)

1960 **625** .21
Deutsche Eisenbahntechnik, August, S. 419.
KAVALEK (L.). — **Entwicklung von Schmiermitteln für Schienenfahrzeuge** unter besonderer Berücksichtigung eines Einheitsachsenöls. (4 000 Wörter & Abb.)

Der Eisenbahningenieur. (Frankfurt am Main.

1960 **625** .1 (43
Der Eisenbahningenieur, August, S. 234.
KESSLER (E.). — **Bundesbahnprobleme und Bahndienst.** (4 000 Wörter & Abb.)

1960 **625** .16
Der Eisenbahningenieur, August, S. 240.
WIEGAND (O.) und THOMA (A.). — Die **neuen Bahnübergangsrichtlinien.** (3 500 Wörter & Abb.)

1960 **656** .254 (43
Der Eisenbahningenieur, August, S. 245.
WAGNER (H.). — **Bahnübergänge.** — Neue Bestimmungen der Strassenverkehrsordnung. (800 Wörter & Abb.)

1960 **629** .11
Der Eisenbahningenieur, August, S. 246.
MESTWERDT (G.). — **Aussenreinigung von Omnibussen.** (600 Wörter & Abb.)

1960 625 .26
r Eisenbahningenieur, August, S. 247.
BRUNS (W.). — Aus der **Praxis der Werkstätten-**
peit. (2 000 Wörter & Abb.)

1960 656 .222 .1
r Eisenbahningenieur, August, S. 250.
FREIMANN (E.). — **Fahrgeschwindigkeiten in**
genweichen. (1 000 Wörter & Abb.)

E.T.R.-Eisenbahntechnische Rundschau. (Köln-Darmstadt.)

1960 656 .211 .5 (436)
senbahntechnische Rundschau, Juli, S. 271.
DULTINGER (J.). — Das erste **Ferrozement-Bahn-**
igdach in Innsbruck. (2 500 Wörter & Abb.)

1960 385 (06 .4 (43)
senbahntechnische Rundschau, Juli, S. 279.
KLITSCHER (R.). — **Deutsche Industriemesse 1960.**
n Rückblick, besonders vom eisenbahntechnischen
andpunkt. (13 000 Wörter, Tafel & Abb.)

1960 625 .2
senbahntechnische Rundschau, Juli, S. 305.
BIJL (F.). — **Festigkeitsberechnung eines Wagen-**
stens. (2 500 Wörter, Tafeln & Abb.)

1960 625 .42 (460)
senbahntechnische Rundschau, Juli, S. 315.
PLANELL (F.). — Der neue Abschnitt Sagrera-
orta der **Untergrundbahn von Barcelona.** (3 000 Wörter
Abb.)

1960 625 .143 .4 (43)
senbahntechnische Rundschau, August, S. 321.
BIRMANN (F.) und RAAB (F.). — Zur **Entwick-**
g durchgehend verschweisster Gleise. Ergebnisse bei
rsuchen auf dem Karlsruher Prüfstand; ihre Aus-
rtung und Deutung. (7 000 Wörter, Tafeln & Abb.)

1960 656 .211 (43)
senbahntechnische Rundschau, August, S. 336.
BERTRAM (W.). — Die **neuen Reisezugabstell-**
ägen im Hauptbahnhof Augsburg. (3 500 Wörter
Abb.)

1960 625 .144 .4 (43)
enbahntechnische Rundschau, August, S. 347.
ROEMERT (E.). — Die bei der Deutschen Bundes-
hn verwendeten **Maschinen und mechanischen Geräte**
Oberbauarbeiten. (4 000 Wörter & Abb.)

1960 625 .13
enbahntechnische Rundschau, August, S. 353.
HÄRTER (L.). — Die **Entwicklung des Tunnelober-**
ies in neuerer Zeit. (3 000 Wörter & Abb.)

Elektrotechnik und Maschinenbau. (Wien.)

1960 621 .313
Elektrotechnik und Maschinenbau, 15. August, S. 349.
SCHUISKY (W.). — **Belastungstoss bei Synchron-**
maschinen. (3 800 Wörter & Abb.)

1960 621 .314
Elektrotechnik und Maschinenbau, 15. August, S. 354.
SCHRAMM (H.). — **Leerlaufverluste bei Trans-**
formatoren. (3 000 Wörter & Abb.)

1960 621 .3
Elektrotechnik und Maschinenbau, 15. August, S. 357.
NACKE (H.). — **Ersatzschaltung zur Ermittlung der**
Stromverdrängung eines Rundleiters. (1 800 Wörter &
Abb.)

E.T.Z. Elektrotechnische Zeitschrift. (Berlin.)

1960 621 .316
E.T.Z., 22. August, S. 405.
LAUBENHEIMER (W.). — **Nullung nach VDE**
0100/58 in Verbraucheranlagen. (1 250 Wörter & Abb.)

1960 621 .317
E.T.Z., 22. August, S. 408.
JÜTTEMANN (H.). — **Erdschlussuche in Nieder-**
spannungsnetzen mit Schutzleitungssystem. (1 650 Wörter
& Abb.)

1960 621 .7
E.T.Z., 22. August, S. 410.
ELSNER (H.). — **Verhütung von Schäden an elek-**
trischen Anlagen. (3 200 Wörter & Abb.)

Leichtbau der Verkehrsfahrzeuge. (Frankfurt/Main.)

1960 625 .2 (44)
Leichtbau der Verkehrsfahrzeuge, Juli-August, S. 178.
DUFOUR (E.). — Die **Fahrzeuge der französischen**
Eisenbahnen aus nichtrostendem Stahl. (6 000 Wörter
& Abb.)

1960 625 .285 (42)
Leichtbau der Verkehrsfahrzeuge, Juli-August, S. 190.
BAUR (H.). — **Schienenomnibus-Versuchsbauarten**
der Britischen Eisenbahnen. (2 000 Wörter, Tafel & Abb.)

1960 625 .3 (44)
Leichtbau der Verkehrsfahrzeuge, Juli-August, S. 195.
SCHROETER (H.). — Das französische **Einschienen-**
Schnellbahnprojekt und seine Vorläufer. (1 600 Wörter
& Abb.)

1960 625 .2
Leichtbau der Verkehrsfahrzeuge, Juli-August, S. 202.
TITTELBACH (F.) und FROMM (N.). — **Strang-**
pressprofile aus Stahl im Schienenfahrzeugbau. (2 000
Wörter & Abb.)

Der Öffentliche Verkehr. (Bern)

1960 **659**
Der Öffentliche Verkehr, August, S. 3.
KASPAR (C.). — Die **Marktforschung im Dienste der Eisenbahn.** (1 300 Wörter.)

1960 **621** .33 (494)
Der Öffentliche Verkehr, August, S. 5.
Die **Elektrifikation des SBB-Netzes abgeschlossen.** (600 Wörter & Abb.)

Periodica Polytechnica. Maschinen-und Bauwesen. (Budapest.)

1960 **625** .214
Periodica Polytechnica, Maschinen- und Bauwesen, Band 4, Nr 2, S. 137.
BIRO (B.). — Grundsätze für die **Dimensionierung von Kegelrollenlagern.** (4 000 Wörter & Abb.)

Signal und Draht. (Frankfurt/Main.)

1960 **656** .254 (43)
Signal und Draht, August, S. 133.
LÜTGERT (R.). — Die **induktive Zugbeeinflussung** bei der Deutschen Bundesbahn. (6 000 Wörter & Abb.)

Verkehr. (Wien.)

1960 **656** .225 (73)
Verkehr, Nr 32, 13. August, S. 1122.
« **Piggyback** » **dominiert im Langstreckenverkehr** der USA. (1 200 Wörter & Abb.)

In English.

Bulletin, Association of American Railroads. (Signal Section) (Chicago.)

1960 **656** .25 (73)
Bulletin, Association of American Railroads, Signal Section, Vol. LVII, No. 1.
Reports to be presented at the Sixty-first Annual Meeting, Chicago, Ill., October 11, 12 and 13, 1960. Rules of Order. — Result of 1959 letter ballot. (157 pages, illustrated.)

Electrical Engineering. (New York.)

1960 **656** .25 (73)
Electrical Engineering, August, p. 638.
HAFNER (T.). — **Microwave by pole line.** (2 300 words & figs.)

1960 **656** .25 (7
Electrical Engineering, August, p. 648.
COUPAL (R.T.), GARVER (L.L.) & SMITH (W.R.
— **A digital computer simulation of single-track railroa operation.** (3 000 words & figs.)

Electric Traction on the Railways. (Brussels.)

1960 **621** .431 .72 (4
Bulletin of the International Railway Congress Ass ciation. — Electric Traction on the Railways, No. July, p. 317.
GAEBLER (G.A.). — The **Diesel engines** of th Deutsche Bundesbahn from the point of view of sta dardisation. (4 800 words & fig.)

1960 **621** .3
Bulletin of the International Railway Congress Ass ciation. — Electric Traction on the Railways, No. July, p. 337.
ROBB (J.L.) and ROBERTS (W.L.). — The desig and manufacture of direct burial wire (2 600 wor & fig.)

1960 **626** .335 (4
Bulletin of the International Railway Congress Ass ciation. — Electric Traction on the Railways, No. July, p. 344.
CAIRE (D.). — Future 1 500 V D.C. **class BB 9 40 locomotives** for the S.N.C.F. (2 000 words & fig.)

1960 **621** .335 (4
Bulletin of the International Railway Congress Ass ciation. — Electric Traction on the Railways, No. July, p. 352.
AMET (M.). — The **dual-frequency locomotive B** 30 003 equipped with silicon rectifiers. (790 words & fig

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1960 **621** .3
Bulletin of the International Railway Congress Ass ciation. — Electric Traction on the Railways, No. July, p. 356.
LIEBE (W.). — Influence of air density (altitude) o the cooling of **electric machines.** (1 000 words & fig.)

The Engineer (London.)

1960 **621** .132 .1 (09 (4
The Engineer, August 12, p. 266.
POULTNEY (E.C.). — **Some notable locomotive of 1910.** (5 000 words & figs.)

1960 **621** .335 (4
The Engineer, August 12, p. 292.
Silicon rectifier in main line service. (1 600 words & figs

1960 **621** .335 (6
The Engineer, August 26, p. 358.
Electric locomotives for South Africa. (2 900 word & figs.)

1960 **621** .431 .72 (6)
The Engineer, August 26, p. 365.
Diesel locomotives for East Africa. (1 600 words & figs.)

Indian Railways. (New Delhi.)

1960 **656** .225
Indian Railways, July, p. 479.
BHATTACHARYA (A.C.). — **Shunter with rubber tyres proves useful in commercial yards.** (600 words & figs.)

Indian Railway Technical Bulletin. (Lucknow.)

1960 **625** .214 (54)
Indian Railway Technical Bulletin, May, p. 74.
Reclamation of used axle oils. (1 000 words & fig.)

1960 **625** .142 .4 (43)
Indian Railway Technical Bulletin, May, p. 82.
The concrete sleepers of the German Federal Railways : recent developments in design and manufacture. (1 500 words, tables & figs.)

Journal, The Institution of Locomotive Engineers. (London.)

1960 **621** .431 .72 (42)
Journal, The Institution of Locomotive Engineers, Vol. 50 (Part 1), No. 273, p. 12.
SCHOLES (G.E.). — **The Swindon-built Diesel hydraulic locomotive.** (80 pages, illustrated.)

1960 **625** .251
Journal, The Institution of Locomotive Engineers, Vol. 50 (Part 1), No. 273, p. 93.
LOW (R.C.S.). — **Some aspects of railway braking.** (82 pages, illustrated.)

The Journal of the Institute of Transport. (London.)

1960 **656** .2 (42)
The Journal of the Institute of Transport, July, p. 333.
Sir Gilmour JENKINS. — **The State and transport economics.** (2 300 words.)

1960 **621** .38
The Journal of the Institute of Transport, July, p. 352.
HINDS (G.H.). — **Electronics in transport.** (2 600 words.)

Modern Railroads. (Chicago.)

1960 **656** .2 (73)
Modern Railroads, August, p. 73.
Piggyback, containers booming in Alaska. (1 600 words & figs.)

1960 **621** .431 .72
Modern Railroads, August, p. 78.
Instruments diagnose Diesels ills. (1 200 words & figs.)

Modern Transport. (London.)

1960 **621** .431 .72 (42)
Modern Transport, July 2, p. 5.
The new Diesel Pullmans. (3 000 words & figs.)

1960 **621** .33 (42)
Modern Transport, August 3, p. 7.
South-East and North-West. **British Railways electrification work.** (1 400 words & figs.)

1960 **621** .33 (42)
Modern Transport, August 27, p. 11, September 3, p. 11; September 10, p. 9.
HAUT (F.J.G.). — **Present state of railway electrification.** (4 800 words & figs.)

1960 **656** .2 (42)
Modern Transport, September 3, p. 3.
CLINKER (C.R.). — **Brecon-Railway crossroads** (*to be continued*). (2 800 words & figs.)

The Oil Engine. (London.)

1960 **621** .431 .72 (42)
The Oil Engine, May, p. 16.
Experience with Deltic locomotive. (1 200 words.)

1960 **621** .431 .72 (42)
The Oil Engine, June, p. 51.
New Diesel hydraulic shunter. (1 000 words & figs.)

1960 **621** .436
The Oil Engine, June, p. 58.
Turbocharging of fast-running units. (1 500 words & figs.)

1960 **621** .431 .72 (42)
The Oil Engine, July, p. 86.
B.R. Pullman Diesel train sets. (1 800 words & figs.)

1960 **621** .431 .72
The Oil Engine, July, p. 89.
For Diesel locomotives and railcars : Hydraulic-Mechanical transmission. The Stone-Maybach Mekydro system. (1 200 words & figs.)

The Overseas Engineer. (London.)

1960 **625** .13 (42)
The Overseas Engineer, June, p. 290.
New British tunnelling techniques. (1 000 words & figs.)

1960 **621** .335 (42)
The Overseas Engineer, July, p. 326.
25 kV electric locomotives for British Railways. (400 words & figs.)

1960 **656** .212 (42)
The Overseas Engineer, September, p. 44.
Marshalling railway wagons electronically. (1 200 words & figs.)

Railway Age. (New York.)

1960 **625** .243 (73)
Railway Age, April 18, p. 26.
GN tests new techniques for bulk lading. (300 words & figs.)

1960 **624** .63 (73)
Railway Age, April 18, p. 38.
Concrete bridge goes up fast. (700 words & figs.)

1960 **656** .225 (73)
Railway Age, April 18, p. 48.
WIGHTMAN (J.). — **Is piggyback standardization possible ?** (1 300 words.)

1960 **625** .162 (73)
Railway Age, May 2, p. 17.
How A.F.O. protects crossings. (900 words & figs.)

1960 **621** .431 .72 (73)
Railway Age, May 9, p. 32.
GE offering 2 500-HP unit to domestic Diesel market. (1 200 words & figs.)

1960 **625** .143 (73)
Railway Age, June 6, p. 23.
Butt-welding booms as fixed plants go up near steel mills. (2 000 words & figs.)

1960 **625** .245 (73)
Railway Age, June 6, p. 28.
New Southern cars set records. (800 words & figs.)

1960 **625** .244 (73)
Railway Age, June 27, p. 62.
« **Blast chilling** » **guards perishables.** (900 words & figs.)

The Railway Gazette. (London.)

1960 **625** .215
The Railway Gazette, July 15, p. 73.
KOFFMAN (J.L.). — **Vertical oscillations of bogie vehicles.** (4 800 words & figs.)

1960 **624** .5 (54)
The Railway Gazette, July 15, p. 98.
Brahmaputra bridge construction at Pandu, Assam. (2 000 words & figs.)

1960 **656** .2 (42)
The Railway Gazette, July 15, p. 101.
Conveyance of large and heavy indivisible loads. (700 words & figs.)

1960 **625** .617 (47)
The Railway Gazette, July 15, p. 103.
Bogie changing at break-of-gauge station. (800 words & figs.)

1960 **385** .3 (42)
The Railway Gazette, July 29, p. 126.
Report on British Railways. (1 600 words.)

1960 **621** .431 .72 (42)
The Railway Gazette, July 29, p. 129.
West Cumberland Diesel services. (1 800 words & figs.)

1960 **621** .335 (42)
The Railway Gazette, July 29, p. 134.
Type « A » A.C. locomotives for British Railways. (1 600 words & figs.)

1960 **625** .24 (42)
The Railway Gazette, August 5, p. 158.
MONCRIEFFE (A.H.). — **The specialised carrier.** (1 000 words & figs.)

1960 **656** .23 (42)
The Railway Gazette, August 5, p. 160.
BLACKSTOCK (J.). — **Freight rate-making in the North Eastern Region.** (1 000 words & figs.)

1960 **625** .213
The Railway Gazette, August 5, p. 164.
KOFFMAN (J.L.). — **Non-linear springs.** (1 600 words & figs.)

1960 **621** .431 .72 (42)
The Railway Gazette, August 12, p. 186.
Express Diesel multiple-unit trains. (1 200 words & figs.)

1960 **621** .431 .72 (42)
The Railway Gazette, August 19, p. 213.
British Railways Diesel-electric locomotive trials. (1 000 words & figs.)

1960 **625** .234 (42)
The Railway Gazette, August 19, p. 217.
Electric heating control in coaching stock. (600 words & figs.)

1960 **625** .42
The Railway Gazette, August 26, p. 242.
The application of rubber to railway uses. (800 words & figs.)

1960 **625** .241 (494)
The Railway Gazette, August 26, p. 246.
Swiss flat and drop-side wagons. (300 words & figs.)

1960 **621** .33 (42)
The Railway Gazette, August 26, p. 248.
Three-car trains for Glasgow suburban services. (1 400 words & figs.)

Diesel Railway Traction. (London.)

1960 **621** .431 .72 (489)
Diesel Railway Traction, July, p. 247.
Diesel Traction in Denmark. (2 900 words & figs.)

1960 **621** .431 .72 (42)
Diesel Railway Traction, July, p. 255.
Parcels vans for British Railways. (600 words & figs.)

1960 **621** .431 .72 & **653**
Diesel Railway Traction, July, p. 269.
Computers and locomotive performances. (600 words & figs.)

1960 **621** .438 (47)
Diesel Railway Traction, July, p. 271.
Soviet gas-turbine locomotive. (300 words & figs.)

1960 **625** .234
Diesel Railway Traction, July, p. 272.
Air conditioning for Diesel Pullmans. (1 400 words & figs.)

1960 **621** .431 .72 (42)
Diesel Railway Traction, July, p. 275.
British Railways Diesel Pullman trains. (3 600 words & figs.)

1960 **621** .431 .72
Diesel Railway Traction, August, p. 287.
Motala Diesel-turbine locomotive. (3 000 words & figs.)

1960 **621** .431 .72
Diesel Railway Traction, August, p. 297.
The manning of Diesel locomotives. (1 600 words & figs.)

1960 **625** .234
Diesel Railway Traction, August, p. 301.
BLACK (R.W.C.). — **Train-heating equipment.** (2 000 words & figs.)

Railway Locomotives and Cars. (New York.)

1960 **625** .214 (73)
Railway Locomotives and Cars, August, p. 33.
N & W tests flat-back bearings. (800 words & figs.)

1960 **625** .212 (73)
Railway Locomotives and Cars, August, p. 34.
What causes wheel tread defects ? (2 000 words & figs.)

1960 **621** .335 (73)
Railway Locomotives and Cars, August, p. 41.
EMD develops new wheel-slip control (*to be continued*). (800 words & figs.)

Trains Illustrated. (London.)

1960 **656** .25 (42)
Trains Illustrated, June, p. 354.
LEACH (M.E.). — **Modern developments in train recorder technique — and their application to the W.R.** (3 200 words & figs.)

1960 **656** .212 .5 (42)
Trains Illustrated, July, p. 404.
FREEMAN ALLEN (G.). — **Margam yard the most modern in Europe.** (2 800 words & figs.)

1960 **621** .431 .72 (42)
Trains Illustrated, August, p. 470.
FREEMAN ALLEN (G.). — **The new diesel-electric luxury Pullman units of British Railways.** (1 600 words & figs.)

Bulletin, University of Illinois, (Urbana.)

1960 **625** .143 .3 (73)
Bulletin, University of Illinois, Vol. 57, No. 73, June.
CRAMER (R.E.). — **Progress reports of investigation of railroad rails.** (18 pages, illustrated.)

In Spanish.

Revista de Obras Publicas. (Madrid.)

1960 **656**
Revista de Obras Publicas, agosto, p. 617.
URIOL (J.I.). — **Incidencia de la coyuntura economica en los transportes terrestres.** (1 000 palabras & cuadros.)

In Italian.

Giornale del Genio Civile. (Roma.)

1960 **624** .2
Giornale del Genio Civile, giugno, p. 437.
FANELLI (E.). — La **trave solidale coi piedritti risolta con un metodo del Colonnetti.** (5 000 parole, tavole & fig.)

1960 **69**
Giornale del Genio Civile, giugno, p. 469.
RANDO (P.). — Metodo generalizzato di **calcolo per telai elastici,** derivato dalle formule fondamentali di Takabeya. (3 000 parole, tavole & fig.)

Ingegneria Ferroviaria. (Roma.)

1960 **621** .33
Ingegneria Ferroviaria, luglio-agosto, p. 577.
MARTINELLI (M.). — **Rotabili ferroviari policorrente.** (5 000 parole & fig.)

1960 **656** .223 .2
Ingegneria Ferroviaria, luglio-agosto, p. 587.
GULLO (G.). — La **ricerca operativa e la ripartizione del materiale da carico.** (8 000 parole & fig.)

1960 **625** .282 (45)
Ingegneria Ferroviaria, luglio-agosto, p. 601.
MANZONI (A.). — La **locomotiva Diesel-elettrica Marelli-Reggiane** per le Ferrovie del Sud-Est. (10 000 parole & fig.)

1960 **691**
Ingegneria Ferroviaria, luglio-agosto, p. 621.
ABRAMO (F.) & BANFI (G.). — **Ricerche sulla corrosione metallica** e sul concorso di attività microbiologiche in apparati idrodinamici ferroviari in presenza di anticongelanti e di inibitori biologici. (4 000 parole, tabelle & fig.)

1960 **656** (4)
Ingegneria Ferroviaria, luglio-agosto, p. 636.
CUTTICA (A.). — **Trasporti economici nei paesi del M.E.C.** Compiti degli ingegneri. (1 600 parole.)

Trasporti Pubblici. (Roma.)

1960 **625** .42
Trasporti Pubblici, giugno, p. 857.
PATRASSI (A.). — **Criteri razionali per un efficiente esercizio di moderne ferrovie metropolitane.** (6 000 parole & fig.)

1960 **656** .211 .5 (43)
Trasporti Pubblici, giugno, p. 915.
Nuovo servizio di deposito colli a mano a mezzo di cassette automatiche. (800 parole & fig.)

1960 **656** .212 .5
Trasporti Pubblici, giugno, p. 917.
Vagoni merci smistati da macchine elettroniche. (600 parole & fig.)

1960 **656** .225 (47)
Trasporti Pubblici, giugno, p. 919.
LOZZI (C.). — I **trasporti internazionali di merci** per ferrovia in Russia. (2 000 parole.)

In Netherlands.

Spoor- en Tramwegen. (Den Haag.)

1960 **385** .517 .6 (492)
Spoor- en Tramwegen, nr 16, 11 augustus, p. 279 en nr 17, 25 augustus, p. 300.
VAN OOSTEROM (A.). — **Taak en organisatie van de Medische Afdeling** bij de N.V. Nederlandsche Spoorwegen. (2 600 woorden & fig.)

1960 **385** .113 (492)
Spoor- en Tramwegen, nr 16, 11 augustus, p. 282.
De **Nederlandsche Spoorwegen in 1959.** (2 000 woorden.)

1960 **656** .211 .5 (492)
Spoor- en Tramwegen, nr 16, 11 augustus, p. 285.
Moderne geluidsinstallatie voor Amsterdams Centraal Station. (500 woorden & fig.)

1960 **625** .13 (492)
Spoor- en Tramwegen, nr 16, 11 augustus, p. 286.
« **Hofpleinviaduct** » **te Rotterdam wordt hersteld...** (3 000 woorden & fig.)

1960 **656** .213 (492)
Spoor- en Tramwegen, nr 17, 25 augustus, p. 295.
VAN DER SAR (F.). — **Contactbureau Havengebied Rotterdam Linker Maasoever.** (3 000 woorden & fig.)

1960 **385** (09 .3 (493)
Spoor- en Tramwegen, nr 17, 25 augustus, p. 302.
JACOPS (A.). — **Kris-kras grepen uit het verleden...** (1 500 woorden & fig.)

1960 **656** .226
Spoor- en Tramwegen, nr 18, 8 september, p. 317.
VAN LIESHOUT (J.). — **Personeelsgebrek en mechanisatie.** (1 500 woorden & fig.)

In Polish (= 491 .85).

Przeglad Kolejowy. (Varsovie.)

1959 **656** .257 = 491 .85
Przeglad Kolejowy, avril et mai, p. 121.
WAZYNSKI (T.) et DABROWA-BAJON (M.). — **Les paramètres de temps lors de la formation des itinéraires dans les postes d'aiguillage.** (5 600 mots, tableaux & fig.)

1959 **656** .22 = 491 .85
Przeglad Kolejowy, avril, p. 127.
WYRZYKOWSKI (W.). — Observations sur quelques **paramètres du mouvement à grande distance.** (2 100 mots, tableaux & fig.)

1959 **656** .212 .5 = 491 .85
Przeglad Kolejowy, avril, p. 143.
WEGIERSKI (J.). — La **technique des manœuvres** dans une gare minière moderne. (3 100 mots, tableau & fig.)

1959 **656** .212 = 491 .85
Przeglad Kolejowy, mai, p. 171.
WEGIERSKI (J.) et CALKA (R.). — L'**organisation du chargement** dans une gare minière moderne. (4 600 mots & fig.)

1959 **621** .333 (438) = 491 .85
Przeglad Kolejowy, mai, p. 195.
ZIELINSKI (A.). — Choix des critères optima pour la **lubrification des moteurs de traction électrique** aux P.K.P. (1 400 mots, tableaux & fig.)

In Portuguese.

Gazeta dos Caminhos de Ferro. (Lisboa.)

1960 **625** .41
Gazeta dos Caminhos de Ferro, nº 1746, 16 de Setembro, p. 254.
O comboio monocarril poderá resolver o problema os transportes nas cidades ? (1 200 palavras.)

Técnica. (Lisboa.)

1960 **624**
Técnica, Julho, p. 585.
de PINHO MORGADO (A.). — **Calculo de estruturas ujeitas a esforços horizontais.** (2 000 palavras & quadros.)

In Russian (= 491 .7).

Transportnoïé Stroïtyélstvo. (Moscou.)

1959 **625** .13 = 491 .7
Transportnoïé Stroïtyélstvo, mai, p. 24.
TCHEJINE (W.A.). — La **reconstruction d'un pont uivant une méthode industrielle.** (1 300 mots & fig.)

1959 **625** .42 (47) = 491 .7
Transportnoïé Stroïtyélstvo, mai, p. 30.
KASANTZEV (S.S.). — **Gare de type nouveau pour e Métro de Leningrad.** (1 200 mots & fig.)

1959 **625** .14 = 491 .7
Transportnoïé Stroïtyélstvo, mai, p. 36.
ISSAIEV (N.M.). — Les **dalles en béton armé sous les ails.** (1 150 mots & fig.)

1959 **624** .21 = 491 .7
Transportnoïé Stroïtyélstvo, mai, p. 40.
LALINE (N.B.). — Le projet de **normes nouvelles e trains d'essais pour le calcul des ponts.** (3 500 mots & fig.)

1959 **624** (47) = 491 .7
Transportnoïé Stroïtyélstvo, juin, p. 26.
KARPINSKY (W.I.) et NEKLEPAÍEVA (S.A.). — **Construction du pont sur le fleuve Oka :** expérience aite avec la fabrication des tubes-enveloppes en béton rmé. (2 000 mots & fig.)

1959 **625** .152 = 491 .7
Transportnoïé Stroïtyélstvo, juin, p. 44.
KORNAKOV (A.M.). — La dimension la plus vantageuse de l'**angle de croisement des voies.** (1 700 ots & fig.)

1959 **625** .164 = 491 .7
Transportnoïé Stroïtyélstvo, juin, p. 47.
DYOUNINE (A.K.). — Les **pare-neiges.** (1 800 mots & fig.)

Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta. (Moscou.)

1959 **625** .282 = 491 .7
Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, nº 5, p. 3.
DROSDOV (N.A.). — La **banalisation des locomotives** comme moyen d'accroissement du rendement de travail. (2 800 mots & fig.)

1959 **621** .333 = 491 .7
Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, nº 5, p. 16.
KHVOSTOV (W.S.). — Sur le choix des **caractéristiques des moteurs de traction des locomotives électriques.** (2 500 mots, tableaux & fig.)

1959 **625** .2 = 491 .7
Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, nº 5, p. 22.
PAKHOMOV (M.P.). — L'**action sur le rail des roues motrices des locomotives à vapeur.** (3 100 mots & fig.)

1959 **625** .212 = 491 .7
Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, nº 5, p. 32.
LARINE (T. W.), DEVYATKINE (W. P.) et KRIVOCHEYEV (W.N.). — L'utilisation de l'acier allié dans les **roues monoblocs.** (2 700 mots & fig.)

1959 **625** .216 = 491 .7
Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, nº 5, p. 37.
NIKOLSKY (L.N.) et KHARITONOV (A.T.). — Les appareils à éléments caoutchouc-métalliques dans l'**attelage automatique.** (3 000 mots, tableaux & fig.)

1959 **625** .141 = 491 .7
Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Institouta Jelezno-Doroznowo Transporta, nº 5, p. 42.
CHAFRANOVSKY (A.K.). — Sur le degré indispensable du **compactage du ballast concassé** dans les renouvellements de la voie. (2 600 mots & fig.)

1959 **656** .211 = 491 .7
Vyéstnik Vsesoyousnowo Nautchno-Issledowatelskowo Instituta Jelezno-Doroznowo Transporta, nº 5, p. 49.
TAROUNINE (G.W.), CHABALINE (N.N.) et DOBROSYELSKY (K.M.). — Perfectionnements modernes de la **technologie du travail de gare.** (3 500 mots & fig.)

In Russian (+ **German and Chinese**) (= 491 .7).

Bulletin de l'OSShD. (Varsovie.)

1959 **656** .2 (51) = 491 .7
Bulletin de l'OSShD, nº 4/5, juillet-novembre, p. 1.
TEN DAJ juan. — Les **Chemins de fer de la Chine nouvelle.** (4 000 mots.)

1959 **656** .235 .6 = 491 .7
Bulletin de l'OSShD, nº 4/5, juillet-novembre, p. 7.
DOTCHEV-GANTCHEV (K.). — Les **frais journaliers des wagons à marchandises en trafic international.** (1 800 mots.)

1959 **625** .25 = 491 .7
Bulletin de l'OSShD, nº 4/5, juillet-novembre, p. 10.
ZIEHM (H.J.). — Pour le développement du **frein à sabots.** (3 300 mots & fig.)

1959 **625** .22 = 491 .7
Bulletin de l'OSShD, nº 4/5, juillet-novembre, p. 19.
TIMOCHENKOV (I.). — **Gabarit d'encombrement et gabarits pour véhicules avec chargements variables.** (1 400 mots & fig.)

1959 **656** .254 = 491 .7
Bulletin de l'OSShD, nº 4/5, juillet-novembre, p. 22 et nº 6.
PIASTOWSKI (J.). — Le **réseau international de télécommunications entre les membres de l'OSShD.** (2 600 mots & cartes.)

1959 **656** .254 = 491 .7
Bulletin de l'OSShD, nº 4/5, juillet-novembre, p. 26.
SOKOLOV (W.). — **Emploi de la télévision aux chemins de fer.** (1 100 mots & fig.)

1959 **656** .235 = 491 .7
Bulletin de l'OSShD, nº 4/5, juillet-novembre, p. 29.
WEBER (D.). — **Bases d'un tarif de marchandises.** (2 100 mots.)

In Czech. (= 91 .886).

Doprava. (Prague.)

1959 **385** .1 = 91 .886
Doprava, mars, p. 75.
HORKY (J.). — Le **problème des bases financières adéquates des chemins de fer.** (2 700 mots.)

1959 **656** = 91 .886
Doprava, mars, p. 94.
PELTRAM (A.). — La **comparaison des prix de revient entre les différents modes de transport.** (4 500 mots.)

1959 **656** .224 = 91 .886
Doprava, avril, p. 107.
LASTOVKA (Z.). — Contribution à la solution du **problème de la coordination du trafic voyageurs.** (3 000 mots & fig.)

1959 **385** (07 (437) = 91 .886
Doprava, avril, p. 113.
BERAN (J.). — L'**Institut général des recherches des chemins de fer** à Prague. (2 400 mots.)

1959 **656** = 91 .886
Doprava, mai, p. 152.
JIRSAK (Z.). — Les **limites de l'économie du transport routier et du transport combiné rail-route.** (900 mots & fig.)

1959 **656** = 91 .886
Doprava, mai, p. 160.
PETROVSKY (F.) et KRONBERGER (L.). — Les **moyens de transport par voie de terre et d'eau dans le transport combiné :** chemins de fer-navigation intérieure (1 000 mots & fig.)

1959 **656** = 91 .886
Doprava, juin, p. 179.
BLAZEK (J.). — Le cinquième mode de transport : le **transport par pipe-lines.** (2 400 mots.)

1959 **656** .222 .5 = 91 .886
Doprava, juin, p. 182.
KOTORA (F.). — **Une appréciation économique des différentes variantes du service ferroviaire de banlieue.** (1 500 mots & fig.)

1959 **681** .14 = 91 .886
Doprava, juin, p. 190.
MAIROVSKY (J.). — Quelques **observations d'un médecin sur la cybernétique.** (2 200 mots.)

Inženýrské Stavby. (Prague.)

1960 **656** .211 .5 = 91 .886
Inženýrské Stavby, août, p. 302.
RAKOSNÍK (J.). — **Abris de quais modernes.** (2 000 mots & fig.)

Železnični doprava a technika. (Prague.)

1959 **656** .222 .6 = 91 .886
Železnični doprava a technika, avril, p. 100.
SUSKE (A.). — Le mode graphique du **calcul des charges** des trains de marchandises lourds. (1 100 mots & fig.)

1959 **656** .222 = 91 .886
Železniční doprava a technika, avril, p. 104.
SCHMID (K.). — Contribution à la solution du **problème du démarrage des trains de marchandises sur les rampes.** (800 mots & fig.)

1959 **656** .222 = 91 .886
Železniční doprava a technika, avril, p. 106.
LOUDA (J.). — **Etude du mouvement de longs trains sur des lignes aux profils variables.** (3 000 mots & fig.)

1959 **656** .254 (437) = 91 .886
Železniční doprava a technika, avril, p. 113.
CAIS (B.). — La **technique d'impulsions pour localiser les dérangements aux lignes de télécommunications** des Chemins de fer tchécoslovaques. (3 300 mots & fig.)

1959 **625** .12 = 91 .886
Železniční doprava a technika, avril, p. 118.
TYC (P.). — Un procédé simple pour fixer la **profondeur de congélation d'un remblai.** (1 000 mots & fig.)

1959 **625** .143 (439) = 91 .886
Železniční doprava a technika, mai, p. 130.
KERKAPOLY (E.). — Quelques **problèmes d'établissement de longues barres** en Hongrie. (3 200 mots & fig.)

1959 **625** .28 = 91 .886
Železniční doprava a technika, mai, p. 141.
MALINDA (Z.). — La **construction, l'utilisation et l'usure des locomotives et des automotrices.**

1959 **656** .257 = 91 .886
Železniční doprava a technika, mai, p. 144.
MAYER (E.). — Les **vérifications des installations de sécurité tout relais de gare** avant leur réception. (3 800 mots, tableaux & fig.)

M. Weissenbruch & Co., Ltd., Printer to the King, 49, rue du Poinçon, Bruxelles.

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[**016** .385 (02]

I. — BOOKS.

In French.

1960 **621** .431 .72
HATEL (M.).
La traction à moteurs thermiques.
Paris, Editions Léon Eyrolles, 61, boulevard St.-Ger-ain. Un volume de 440 pages, 254 figures et 33 planches ors-texte. (Prix : 50 N.F.)

1960 **385** .6
URAND.
Les Transports internationaux. Mise à jour 1960.
Paris, édité par le Recueil Sirey, 22, rue Soufflot.

1960 **62** (01
OUILLÉ (A.).
Physique des vibrations à l'usage des ingénieurs.
Paris, Dunod, éditeur, 92, rue Bonaparte. Un volume 6 × 25 cm) de 560 pages, avec 560 figures. (Prix : 9 N.F.)

1959 **624** .2
OLOUŠEK (V.).
Calcul des efforts dynamiques dans les ossatures rigides. ibrations des poutres, des portiques et des arcs.
Paris, Dunod, éditeur. Un volume relié de 271 pages 6 × 25 cm) avec 77 figures. (Prix : 46 N.F.)

In German.

1959 **691**
OFACKER (K.).
Stahlbeton-Tabellen.
Zurich, Verlag Leemann. 64 Seiten (17 × 24 cm). reis : 15 Schw. Fr.)

1960 **62** (02
ütte, Des Ingenieurs Taschenbuch-Maschinenbau.
Teil B (Hütte II B), 28. *Auflage.*
Berlin, Verlag von Wilhelm Ernst & Sohn. 930 Seiten. reis, gebunden : DM 48.—; Leder : DM 60.—.)

1960 **385** (03
STUMPF (B.).
Eisenbahnlexikon. 4 000 Stichwörter aus allen Fachgebieten des Eisenbahnwesens.
Mainz und Heidelberg, Verlagsanstalt Hüthig und Dreyer. XIV-298 Seiten. (Preis : DM 15.—.)

1959 **621** .392
Ing. W. WENZEL.
Das Schweissen im Eisenbahnwesen. Heft 1, Teil 1 und Heft 1, Teil 2.
Halle (Saale), VEB Carl Marhold Verlag. (Preis : Teil 1, 15.20 DM und Teil 2, 7.90 DM.)

In English.

1960 **621** .431 .72 (07
BOLTON (F.).
The Railwayman's Diesel Manual.
One volume (7 1/4 × 4 3/4 in.) of 168 pages, illustrated.
London : J.H. Lake & Co. Ltd., 283, Archway Road, N. 6 (Price : 12 s. 6 d.)

1960 **621** .132 .1 (09
CASSERLEY (H.C.).
The historic locomotive pocketbook.
One volume (5 1/2 × 4 1/2 in.) of 256 pages, illustrated.
London : B.T. BATSFORD Ltd., 4, Fitzhardinge Street, Portman Square, W.1 (Price : 8 s. 6 d.)

1960 **385** (09
ROLT (L.T.C.).
George and Robert Stephenson : The Railway revolution.
One volume (9 × 6 in.) of 356 pages, illustrated.
London : Longmans, Green & Co. Ltd., 6 Clifford Street, W.1. (Price : 30 s.)

1960 **621** .132 (47)
WESTWOOD (J.N.).
Russian locomotive types.
One volume (7 × 5 in.) of 104 pages, illustrated.
Published by the author at Oakleigh Close, Backwell, Bristol. (10 s. net.)

(1) The numbers placed over the title of each book are those of the decimal classification proposed by the Railway Congress njointly with the Office Bibliographique International, of Brussels. (See « Bibliographical Decimal Classification as applied to Railway ience », by L. WEISSENBRUCH, in the number for November 1897, of the *Bulletin of the International Railway Congress*, p. 1509).

[016 .385 (05]

II. — PERIODICALS.

In French.

Acier - Stahl - Steel. (Bruxelles.)

1960 **624**

Acier-Stahl-Steel, octobre, p. 411.

JOGUET (P.). — **Matériel de couplage pour la manutention de tabliers de ponts-rails.** (2 500 mots, tableaux & fig.)

1960 **624**

Acier-Stahl-Steel, octobre, p. 444.

PERUCCI (G.). — Extension du concept de rigidité et ses applications aux **constructions réticulées spatiales.** (2 500 mots & fig.)

Annales de l'Institut Technique du Bâtiment et des Travaux Publics. (Paris.)

1960 **691**

Annales de l'Institut techn. du Bâtiment et des Trav. Publics, septembre, p. 915.

PETROCOKINO (D.). — Les divers aspects de la **corrosion des armatures dans les ouvrages en béton armé et précontraint.** (7 000 mots & fig.)

Annales des Ponts et Chaussées. (Paris.)

1960 **62** (01

Annales des Ponts et Chaussées, septembre-octobre, p. 577.

ROBINSON (J.R.). — **Compression excentrée et flambement des poteaux rectangulaires en béton armé par le calcul à la rupture.** (8 000 mots, tableaux & fig.)

Annales des Travaux Publics de Belgique. (Bruxelles.)

1960 **691**

Annales des Travaux Publics de Belgique, nº 2, avril, p. 149.

VANDEPERRE (L.J.) et PLISNIER (J.). — **La granulométrie, le dosage et la préestimation des bétons.** — Le durcissement des ciments. (*Fin*). (10 000 mots & fig.)

Bulletin de l'Association Suisse des Electriciens. (Zürich.)

1960 **621 .31**

Bull. de l'Ass. Suisse des Electriciens, 27 août, p. 820.

LOCHINGER (R.B.) und STRUTT (J.O.). — **Anwendung von Elektrolumineszenz-Zellen als elektrische Schaltelemente.** (1 000 Wörter & Abb.)

1960 **621 .31**

Bull. de l'Ass. Suisse des Electriciens, 10 septembre, p. 849.

ABEGG (K.). — **Alterungsversuche zur Entwicklung und Beurteilung neuer Stator-Isolationen.** (5 000 Wörter & Abb.)

1960 **621 .31**

Bull. de l'Ass. Suisse des Electriciens, 24 septembre, p. 893.

WEGMANN (H.). — **Netzschutz und Steuerung bei Wiedereinschaltung.** (3 800 Wörter & Abb.)

1960 **621 .31**

Bull. de l'Ass. Suisse des Electriciens, 24 septembre, p. 908.

La surveillance automatique de l'**isolement d'installations de câbles.** (400 Wörter & Abb.)

Bulletin de Documentation S.C.E.T.A. (Paris)

1960 **656 .261** (492

Bulletin de Documentation S.C.E.T.A., septembre-octobre, p. 1.

L'**organisation des services terminaux des chemins de fer** aux Pays-Bas. (2 000 mots & fig.)

1960 **656 .22**

Bulletin de Documentation S.C.E.T.A., septembre-octobre, p. 7.

Le piggyback s'impose... (1 200 mots & fig.)

Bulletin de Documentation de l'Union Internationale des Chemins de fer. (Paris.)

1960 **621 .335** (47

Bull. de Documentation de l'U.I.C., août-septembre, p. 71.

La future locomotive à courant monophasé 50 Hz, type N-62 des Chemins de fer Soviétiques. (1 000 mots & fig

---

Bulletin de la Société Française des Electriciens (Paris.)

1960 **621 .31**

Bulletin de la Société Française des Electriciens, août, p. 547.

MONNET (M.). — **Conditions à imposer aux parafoudres** pour qu'ils protègent le matériel contre les surtensions internes. (3 800 mots & fig.)

1960 **621 .31**

Bulletin de la Société Française des Electriciens, août, p. 558.

DUBOIS (C.). — **Tenue aux surtensions internes des parafoudres pour réseaux haute tension.** (6 800 mots & fig

1960 **621 .316**
ılletin de la Société Française des Electriciens, août, p. 572.
LACOURCELLE (Y.). — Résultats des essais effectués r deux types de **parafoudres.** (950 mots & fig.)

1960 **621 .313**
ılletin de la Société Française des Electriciens, septembre, p. 605.
POULOUJADOFF (M.). — Les **théories relatives au ɔteur d'induction monophasé,** leur principe, leur établissment, leur équivalence. (4 200 mots & fig.)

1960 **621 .438**
ılletin de la Société Française des Electriciens, septembre, p. 613.
BOUREL (J.). — L'automatisme dans les équipements **turbines à gaz,** commande et contrôle. (12 500 mots fig.)

Bulletin des Transports Internationaux par Chemins de fer. (Berne.)

1960 **385 .63**
ıll. des Transp. Internat. par Ch. de fer, septembre, p. 189.
SELIGSOHN (F.). — De l'**étendue de la responsabilité ns la prochaine CIM.** (2 500 mots.)

Bulletin de l'Union Internationale des Chemins de fer. (Paris.)

1960 **621 .33**
ıll. de l'Union Intern. des Chemins de fer, septembre-octobre, p. 245.
CURTIS (L.B.). — L'**électrification des chemins de fer** ndue inéluctable par les tendances économiques actuel-. (4 000 mots.)

1960 **385** (09 (3) & **385** .113 (3)
ıll. de l'Union Intern. des Chemins de fer, septembre-octobre, p. 253.
Les **Chemins de fer en 1959** (Suède, Suisse, Tunisie, ırquie). (7 000 mots & tableaux.)

Génie Civil. (Paris.)

1960 **624 .2**
énie Civil, n° 3525, 1er octobre, p. 413.
LEFAUDEUX (G.). — Les **efforts internes dans les nts.** (600 mots.)

L'Industrie des Voies ferrées et des Transports automobiles. (Paris.)

1960 **625 .2 : 625 .62 (44)**
Ind. des Voies fer. et des Transports automobiles, septembre, p. 128.
BERAUD. — Les **automotrices P.C.C. type 500** du éseau urbain de Saint-Etienne. (4 000 mots & fig.)

Revue ACEC. (Charleroi.)

1960 **621 .316**
Revue ACEC, n° 2, p. 2.
DELEVOY (V.) et CASSALETTE (F.). — Les **disjoncteurs haute-tension à hexafluorure de soufre.** (6 500 mots & fig.)

1960 **621 .316**
Revue ACEC, n° 2, p. 18.
BLASE (J.L.). — Le **courant post-arc dans les disjoncteurs.** Son influence sur les essais par éléments séparés et les essais indirects. (5 700 mots et fig.)

Revue Générale des Chemins de fer. (Paris.)

1960 **725 .31 (494)**
Revue Générale des Chemins de fer, octobre, p. 513.
DESPONDS (R.). — La **reconstruction de la gare aux voyageurs** de Berne. (2 000 mots & fig.)

1960 **385 .517 .1 (44)**
Revue Générale des Chemins de fer, octobre, p. 524.
COMBES (B.). — **Etude de la mortalité des retraités de la S.N.C.F.** (5 000 mots & tableaux.)

1960 **621 .338 (44) & 621 .431 .72 (44)**
Revue Générale des Chemins de fer, octobre, p. 539.
BERTHAULT & FOLLAIN. — Les **nouvelles installations du Service du Matériel et de la Traction** de la S.N.C.F. en gare du Mans. Le dépôt « autorails » et le « relais électrique ». (2 000 mots & fig.)

1960 **656 .254**
Revue Générale des Chemins de fer, octobre, p. 549.
DASSIEU et FAUCHER. — **Alerte du personnel d'intervention immédiate au moyen de courants à très basse fréquence.** (1 200 mots & fig.)

Revue Générale des Sciences appliquées. (Bruxelles.)

1960 **669 .71**
Revue Générale des Sciences appliquées, n° IV, p. 111.
BOCCON-GIBOD (R.). — **Applications des alliages légers dans les transports terrestres.** (3 000 mots & tableaux.)

Revue de la Société English Electric. (Stratford.)

1960 **621 .3**
Revue de la Société English Electric, Vol. 16, juin, p. 5.
GILMOUR (A.) et VAN DORP (S.D.). — **La machine calculatrice Deuce** et sa contribution à la réalisation et à la mise en œuvre de la traction ferroviaire. (15 000 mots & fig.)

1960 **621 .3**
Revue de la Société English Electric, Vol. 16, juin, p. 45.
SWITZMAN (J.). — Un **équipement à analogie pour l'analyse des servo-mécanismes.** (4 800 mots & fig.)

Revue de l'Union Internationale des Transports Publics. (Bruxelles.)

1960 **388**
Revue de l'Union Intern. des Transp. Publics, vol. IX, nº 3, p. 233.
MAESTRELLI (R.). — **Enquiry into the most efficient means of public transport.** (10 000 mots, tableau & fig.)

1960 **656** .211 .5
Revue de l'Union Intern. des Transp. Publics, vol. IX, nº 3, p. 285.
LEIBBRAND (K.). — **L'escalier mécanique dans les installations modernes de transports.** (3 000 mots & fig.)

La Traction Electrique dans les Chemins de fer. (Bruxelles.)

1960 **621** .336
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 8, août, p. 381.
GIAGNONI (C.). — Quelques considérations sur la captation de courant à la **caténaire** et sur les matériaux de contact les plus appropriés. (3 400 mots & fig.)

1960 **621** .431 .72 (43)
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 8, août, p. 390.
BROXTERMANN (M.). — La **locomotive Diesel** V 100. (3 400 mots & fig.)

1960 **621** .31
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 8, août, p. 399.
ROBB (J.L.) et ROBERTS (W.L.). — L'étude et la fabrication du fil directement enterré. (2 600 mots & fig.)

1960 **621** .332
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 8, août, p. 407.
BUCKEL (R.). — Mesures à prendre en cas d'induction dans les installations de télécommunication due aux **chemins de fer électrifiés** en courant alternatif. Commentaires sur de nouveaux « Principes » du VDE. (3 000 mots & fig.)

1960 **621** .333
Bulletin du Congrès des Chemins de fer. — La Traction Electrique dans les Chemins de fer, nº 8, août, p. 414.
BUDIG (P.-K.). — Le **moteur de traction** moderne. (5 700 mots & fig.)

La Vie du Rail. (Paris.)

1960 **625** .3 (494)
La Vie du Rail, 18 septembre, p. 3.
SCHMIDT (G.). — Les deux **Chemins de fer du Mont Rigi** en Suisse. (2 500 mots & fig.)

1960 **385** .517 .7 (44)
La Vie du Rail, 18 septembre, p. 22; 2 octobre, p. 25.
L'**effort de la S.N.C.F. pour le logement de son personnel.** (2 000 mots & fig.)

1960 **656** .212 .5 (44
La Vie du Rail, 2 octobre, p. 3.
JAEGLER (J.). — **Modernisation du triage d'Haussb bergen.** (1 000 mots & fig.)

1960 **621** .336 (493
La Vie du Rail, 2 octobre, p. 10.
L'entretien et le dépannage des caténaires à la S.N.C.B (300 mots & fig.)

1960 **621** .335 (44
La Vie du Rail, 2 octobre, p. 15.
VEZIES (G.). — **L'automotrice électrique à courant continu 1 500 V Z7.101.** (1 500 mots & fig.)

1960 **656** .1 & **656** .2
La Vie du Rail, 16 octobre, p. 3.
FORCE (G.). — Regards sur le **transport mixte rail-route.** (1 500 mots & fig.)

In German.

Die Bundesbahn. (Darmstadt und Köln.)

1960 **351** (43)
Die Bundesbahn, Nr 15, August, S. 754.
FROMM (G.). — Zur **Neuregelung der rechtlichen Beziehungen zwischen Bund und Bundesbahn.** (5 000 Wörter.)

1960 **656** (43)
Die Bundesbahn, Nr 15, August, S. 769.
DIETRICH (A.). — Der **Begriff des « unbilligen Wettbewerbs » im Personenbeförderungsrecht.** — Seine Geschichte und seine Bedeutung. (4 000 Wörter.)

1960 **625** .14 (43)
Die Bundesbahn, Nr 16, August, S. 784.
HARREUTHER (H.). — Die **Oberbaustoffwirtschaft** im Jahre 1960. (10 000 Wörter & Abb.)

1960 **697** (43)
Die Bundesbahn, Nr 16, August, S. 804.
GRAMATKE (W.). — Die **Wärmewirtschaft bei den Heizungsanlagen der Deutschen Bundesbahn.** (4 000 Wörter, Tafeln & Abb.)

1960 **625** .2 (43)
Die Bundesbahn, Nr 17, September, S. 838.
WIENS (G.). — **Moderne Fahrzeuge der DB** auf der Landes-Verkehrsausstellung « Schiene und Strasse », Essen. (4 000 Wörter & Abb.)

1960 **625** .172
Die Bundesbahn, Nr 17, September, S. 852.
LÖFLUND. — **Neuerungen in der chemischen Gleisentkrautung.** (1 500 Wörter & Abb.)

Deutsche Eisenbahntechnik. (Berlin.)

1960 **625** .2
eutsche Eisenbahntechnik, September, S. 429.
Plaste im Waggonbau. (2 500 Wörter.)

1960 **625** .22
eutsche Eisenbahntechnik, September, S. 433.
GRAU (B.). — Die **Regelumgrenzungslinie 1-SM/DR.** *ortsetzung folgt.*) (5 000 Wörter, Tafeln & Abb.)

1960 **621** .131 .2
eutsche Eisenbahntechnik, September, S. 442.
VATASAN (O.) und NECKE (G.). — Vorschläge r den **Bau eines optischen Messtandes für Lokomotiv-hmen.** (2 000 Wörter & Abb.)

1960 **625** .25
eutsche Eisenbahntechnik, September, S. 446.
VOGEL (E.). — **Bremswege, Bremsprozente, Brems-ndertstel.** (3 000 Wörter.)

1960 **625** .26
eutsche Eisenbahntechnik, September, S. 451.
NIED (F.) und WÖSTENFELD (D.). — Die **Aus-rkung der Umstellung auf Elektro- und Dieseltraktion i der DR auf die Arbeit der Ausbesserungswerke.** 000 Wörter & Abb.)

1960 **656** .212
eutsche Eisenbahntechnik, September, S. 454.
GEBHARDT (R.). — Die **Neugestaltung der Güter-rkehrsanlagen** eine Folge der neuen Ladeorganisation Stückgutknotenpunktverkehr. (3 000 Wörter & Abb.)

1960 **656** .225
eutsche Eisenbahntechnik, September, S. 460.
KEIL (H.) und WIDERSTEIN (K.). — Zur Ab-enzung zwischen **Wagenladungen und Kleinsendungen** s Güterverkehrs. (5 000 Wörter, Tafeln & Abb.)

1960 **656** .25 (42)
eutsche Eisenbahntechnik, September, S. 469.
Elektronisch gesteuerte automatische Betriebs-hrung auf der Londoner Untergrundbahn. (1 200 örter & Abb.)

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er Eisenbahningenieur. (Frankfurt am Main.)

1960 **625** .28 (43)
er Eisenbahningenieur, September, S. 261.
FLEMMING (F.). — **Rationalisierung und Moder-ierung im Maschinentechnischen Dienst** der Deutschen ndesbahn. (5 000 Wörter.)

1960 **621** .9 (43)
er Eisenbahningenieur, September, S. 268.
RIDDER (H.). — Die **Werkzeugmaschinenausstel-ng** in Hannover. — Ihre Bedeutung für den Einkauf d den Einsatz von Werkzeugmaschinen bei der eutschen Bundesbahn. (3 000 Wörter & Abb.)

1960 **691**
Der Eisenbahningenieur, September, S. 277.
EISENMANN (J.). — **Verwendung von Betonzusatz-mitteln.** (3 000 Wörter.)

1960 **691**
Der Eisenbahningenieur, September, S. 280.
SCHREIER (M.). — **Isolierstoffe im Hochbau.** (1 500 Wörter & Abb.)

1960 **625** .144 .2
Der Eisenbahningenieur, September, S. 285.
WARNICK (A.). — **Pfeilhöhenbild-Winkelbild.** (1 500 Wörter, Tabellen & Abb.)

1960 **656** .2 (43)
Der Eisenbahningenieur, September, S. 289.
Gesundung der Deutschen Bundesbahn. (800 Wörter.)

E.T.R. - Eisenbahntechnische Rundschau. (Köln-Darmstadt.)

1960 **656** (43)
Eisenbahntechnische Rundschau, September, S. 364.
GRUSS (W.). — **Schiene und Strasse.** Landesverkehrs-ausstellung in Essen vom 10. bis 25. September 1960. (3 000 Wörter & Abb.)

1960 **625** .42 (43)
Eisenbahntechnische Rundschau, September, S. 369.
HURT (O.). — Die **S-Bahn-Planung in München.** Zum Entwurf der Deutschen Bundesbahn. (4 000 Wörter & Abb.)

1960 **621** .9 (43)
Eisenbahntechnische Rundschau, September, S. 384.
POLZIN (G.). — Zur **Werkzeugprüfung** bei der Deutschen Bundesbahn. (2 500 Wörter & Abb.)

1960 **625** .26 : **621** .335 (43)
Eisenbahntechnische Rundschau, September, S. 390.
LOY (A.) und GLÜCK (H.). — Das **DB-Aussbesser-ungswerk für elektrische Lokomotiven** in München-Freimann. (10 000 Wörter & Abb.)

1960 **625** .162
Eisenbahntechnische Rundschau, September, S. 406.
OHLEMUTZ (A.). — **Einheitliche Gestaltung kleinerer Überführungsbauwerke** über Eisenbahn-strecken. (3 000 Wörter & Abb.)

Elektrische Bahnen. (München.)

1960 **621** .33
Elektrische Bahnen, Heft 8, S. 170.
WAGNER (R.). — Die **Elektrisierung an der Saar.** (3 200 Wörter & Abb.)

1960 **656** .259
Elektrische Bahnen, Heft 8, S. 175.
WIRTH (W.). — **Sicherheitsfahrschaltung für Schienen-fahrzeuge mit elektronischen Steuergeräten.** (3 000 Wörter & Abb.)

Elektrotechnik und Maschinenbau. (Wien.)

1960 **625 .234**
Elektrotechnik und Maschinenbau, 15. September, S. 401.
DOPPLER (S.). — **Warmluftheizung der Reisezugwagen.** (6 300 Wörter & Abb.)

1960 **621 .31**
Elektrotechnik und Maschinenbau, 15. September, S. 411.
CALVI (G.). — **Berechnung der Stossmomente bei Fehlsynchronisation und Kurzschluss einer Synchronmaschine.** (3 500 Wörter & Abb.)

E.T.Z. Elektrotechnische Zeitschrift. (Berlin.)

1960 **621 .31**
E.T.Z. Elektrotechnische Zeitschrift, 19. September, S. 455.
BALKOW (J.) und REITWIESSNER (F.). — **Steuerbare Silizium-Gleichrichter.** (1 5 00 Wörter & Abb.)

1960 **621 .316**
E.T.Z. Elektrotechnische Zeitschrift, 19. September, S. 458.
SCHRANK (E.). — **Lasttrennschalter für Mittelspannungsnetze.** (4 900 Wörter & Abb.)

1960 **621 .31**
E.T.Z. Elektrotechnische Zeitschrift, 19. September, S. 462 und 3. Oktober, S. 487.
EULER (J.). — **Fortschritte auf dem Gebiet der galvanischen Stromerzeuger.** (4 700 Wörter & Abb.)

1960 **621 .315**
E.T.Z. Elektrotechnische Zeitschrift, 3. Oktober, S. 477.
BAX (H.). — **Aktuelle Probleme neuzeitlicher Niederspannungskabel.** (5 100 Wörter & Abb.)

1960 **621 .31**
E.T.Z. Elektrotechnische Zeitschrift, 17. Oktober, S. 515.
KALTENECKER (H.) und PIROUZAN (A.). — **Ein kontaktloses Prozess-Signalsystem.** (4 800 Wörter & Abb.)

Glasers Annalen. (Berlin.)

1960 **625 .28 (43)**
Glasers Annalen, Juli, S. 247.
WIENS (G.). — Stand der **Entwicklung der Maschinen- und Elektrotechnik bei der Deutschen Bundesbahn.** (8 000 Wörter & Abb.)

1960 **625 .1 (43) & 625 .2 (43)**
Glasers Annalen, Juli, S. 261.
WITTE (F.). — **Gegenwärtige und zukünftige Aufgaben des Bundesbahn-Zentralamtes in Minden** (Westf.). (9 000 Wörter & Abb.)

1960 **625 .1 (43) & 625 .2 (43**
Glasers Annalen, Juli, S. 277.
PETERS (A.). — **Gegenwärtige und zukünftige Aufgaben des Bundesbahn-Zentralamtes München.** (12 000 Wörter, Tafeln & Abb.)

1960 **625 .1 (43) & 625 .2 (43**
Glasers Annalen, Juli, S. 299 und S. 307.
MÜLLER (C. Th.). — **Aus der Arbeit der Versuchsämter** des BZA Minden (Westf.). (4 000 Wörter, Tafeln & Abb.)
KASPEROWSKI (O.). — **Aus der Arbeit der Bundesbahn-Versuchsanstalt** München. (5 000 Wörter & Abb.)

1960 **656 .222**
Glasers Annalen, Juli, S. 339.
KAISLING (K.). — **Gegenwart und Zukunft des kombinierten Verkehrs.** (9 000 Wörter & Abb.)

1960 **625 .2**
Glasers Annalen, Juli, S. 351.
RÖHRS (F.). — Die **historische Entwicklung des Traktionsmittel.** (20 000 Wörter & Abb.)

1960 **625 .**
Glasers Annalen, Juli, S. 379.
BORN (E.). — Aus der **Entwicklungsgeschichte des Eisenbahnwagen.** (5 000 Wörter, Tafeln & Abb.)

1960 **385 .6 (4**
Glasers Annalen, Juli, S. 391.
RECK (W.). — Die **Zusammenarbeit der europäischen Eisenbahnen auf technischem Gebiet.** (12 000 Wörter & Abb.)

1960 **38**
Glasers Annalen, Juli, S. 408.
KRIENITZ (G.). — **Die Industrie und die Eisenbahnen.** (6 000 Wörter & Abb.)

Leichtbau der Verkehrsfahrzeuge. (Frankfurt-Main.)

1960 **625 .**
Leichtbau der Verkehrsfahrzeuge, September-Oktober S. 222.
LIPPACHER (K.). — **Kostenmässige Betrachtungen zum Leichtbau von Verkehrsfahrzeugen.** (2 000 Wörter & Abb.)

1960 **625 .285 (42**
Leichtbau der Verkehrsfahrzeuge, September-Oktober S. 243.
BAUR (H.). — **Englische Dieseltriebzüge « mittlerer Leistung ».** (2 500 Wörter, Tafeln & Abb.)

Der Öffentliche Verkehr. (Bern.)

1960 **656 .222 .5 (494**
Der Öffentliche Verkehr, September, S. 18.
Die SBB bauen elektrische TEE-Züge. (400 Wörter & Abb.)

Periodica Polytechnica. — Elektrotechnik. (Budapest.)

1960 **621** .31

eriodica Polytechnica, Elektrotechnik, Vol. 4, Nr 2, S. 55.

FRIGYES (A.). — **About the balancing of half-wave ush-pull magnetic amplifiers.** (4 800 Wörter & Abb.)

---

chweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik. (Zürich.)

1960 **656** .222 .5

chweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, Nr 3, S. 181.

SEGGEL (R.). — Der **öffentliche Personennahverkehr Grosstädten.** — Aufgabe und Problematik. (6 000 örter.)

1960 **656** .232 (44)

chweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, Nr 3, S. 203.

LARTIGUE (R.). — **Le calcul des prix de revient la S.N.C.F.** (4 500 Wörter, Tafeln & Abb.)

1960 **656** .1 (492)

chweizerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, Nr 3, S. 229.

JANSSEN (H.J.H.). — La **réglementation du trans- rt routier professionnel** et la position du transport our compte propre et celle de l'usager aux Pays-Bas. 000 Wörter.)

Siemens-Zeitschrift. (Berlin.)

1960 **621** .31

emens-Zeitschrift, August, S. 472.

BRUSCH (J.) und ZIEGLER (A.). — **Erdung d Störungsschutz in der Übertragungstechnik.**

Signal und Draht. (Frankfurt/Main.)

1960 **656** .254 (43)

gnal und Draht, September, S. 149.

WEIDLICH (H.). — **Fernsehen mit Orthikon- hlagen** bei der Deutschen Bundesbahn. (1 000 Wörter Abb.)

1960 **656** .257

gnal und Draht, September, S. 151.

MÜLLER (F.). — Die **Technik der Zusatzeinrichtung r wechselweise ein- und zweigleisigen Betrieb bei -Stellwerken** der Bauformen Siemens. (1 500 Wörter Abb.)

1960 **656** .254

gnal und Draht, September, S. 156.

BÖRJES (H.). — **Versuche mit der Bahnübergangs- eorie.** (1 500 Wörter & Abb.)

Verkehr. (Wien.)

1960 **656** .222 .6

Verkehr, 24. September, S. 1341.

KEPNIK (B.). — **Neue Wege zur Beschleunigung von Gütern in Wagenladungen.** Das TEEM-System. (2 000 Wörter.)

Zeitschrift für Verkehrssicherheit. (Frankfurt/Main.)

1960 **656** .2 (436)

Zeitschrift für Verkehrssicherheit, Heft 3, S. 163.

PENDL (A.). — **Die verkehrspolitische Lage Öster- reichs im europäischen Raum.** (*Wird fortgesetzt.*). (8 000 Wörter & Abb.)

In English.

Electric Traction on the Railways. (Brussels.)

1960 **625** .234 (44)

Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 8, August, p. 359.

MIGNON. — Ground installations for electric preheating and trials in connection with the **heating of the passenger rakes** on the Paris-Lille line, electrified with single-phase 25 kV current. (2 000 words & fig.)

1960 **625** .232 (44)

Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 8, August, p. 365.

PARÈS and PALATRE. — **Equipment of the rakes** used in the north suburban services of the S.N.C.F. in order to use them with **electric traction** 25 000 V single phase. (2 000 words & fig.)

1960 **621** .332

Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 8, August, p. 373.

HAUSMANN and DANGEL. — Rail bonds for **traction current return** on electrified lines with track circuits. (2 200 words & fig.)

1960 **621** .333

Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 8, August, p. 381.

APPLEBY (E.C.). — Production and maintenance simplified using glass bands for **traction motors.** (2 000 words & fig.)

1960 **621** .8

Bulletin of the International Railway Congress Association — Electric Traction on the Railways, No. 8, August, p. 387.

ZIEBART (E.). — Principles of the hydrodynamic transmissions and their characteristics and their value for driving railway vehicles. (7 200 words & fig.)

The Engineer. (London.)

1960 **621** .132 .1 (42)
The Engineer, Sept. 2, p. 395.
TUPLIN (W.A.). — **The British steam locomotive since 1900.** (6 000 words.)

1960 **621** .33 (42)
The Engineer, Sept. 16, p. 463; Sept. 23, p. 499.
First British 25 kV main line electrification. (4 600 words & figs.)

1960 **621** .33
The Engineer, Sept. 30, p. 560; Oct. 7, p. 590; Oct. 14, p. 624.
Equipment for railway electrification. (5 400 words & figs.)

1960 **625** .4 (42)
The Engineer, Oct. 7, p. 585.
Moving pavement or « Trav-o-lator » for railway passengers. (1 800 words & figs.)

Engineering. (London.)

1960 **621** .131 .1
Engineering, September 2, p. 315.
Rail surfaces and locomotive wheel slipping. (500 words & fig.)

1960 **621** .431 .72 (6)
Engineering, September 2, p. 320.
Extra resilience for locomotive bogies. (800 words & figs.)

1960 **621** .19 (42)
Engineering, September 23, p. 421.
High-pressure radiant heating for Diesel depot. (600 words & fig.)

1960 **656** .225
Engineering, September 30, p. 459.
Today's approach to road rail goods transfer. (200 words & figs.)

Indian Railways. (New Delhi.)

1960 **625** .244 (42)
Indian Railways, September, p. 595.
DUDEJA (D.P.) and LUTHER (M.M.). — **Indian Railways manufacture refrigerated vans.** (1 000 words & figs.)

Proceedings, The Institution of Civil Engineers. (London.)

1960 **385** .58
Proceedings, The Institution of Civil Engineers, October, p. 219.
OWEN (L.). — **Management in engineering.** (2 000 words.)

1960 **385** .58
Proceedings, The Institution of Civil Engineers, October, p. 232.
SMITH (E.). — **Management and human relations.** (3 000 words.)

The Journal of the Institute of Transport. (London.)

1960 **656** ...
The Journal of the Institute of Transport, September, p. 377.
WHITE (A.J.). — **The future of co-ordination between rail and road.** (2 800 words.)

1960 **385** .5
The Journal of the Institute of Transport, September, p. 382.
DUNBAR (A.R.). — **Staff relations on the railways.** (2 500 words.)

Modern Transport. (London.)

1960 **621** .431 .72 (6
Mordern Transport, September 10, p. 17.
Main line metre-gauge Diesels for East African Railways. (1 400 words & figs.)

1960 **621** .33 (42
Mordern Transport, September 16, p. 461.
First British 25 kV main line electrification. No. 1 (*to be continued.*) (2 900 words & figs.)

1960 **621** .33
Modern Transport, September 24, p. 5; October 1, p. 13; October 8, p. 12.
HAUT (F.J.G.). — **Present state of railway electrification;** 4-5 Electric railways in the Commonwealth. (4 800 words & figs.)

1960 **656** .212 .6 (42
Modern Transport, September 24, p. 27; October 1, p. 23.
Robotug installation at Wolverhampton Herbert Street Goods station. (2 400 words & figs.)

1960 **621** .33 (42
Modern Transport, October 1, p. 7.
On the Southern Region. Direct current third rail traction. (1 500 words & fig.)

1960 **621** .33 (42
Modern Transport, October 1, p. 10.
Glasgow suburban electrification. (900 words & fig.)

1960 **621** .33 (42
Modern Transport, October 1, p. 11.
Electric traction on Eastern Region. (1 500 words & figs.

The Oil Engine. (London.)

1960 **621** .431 .72 (6)
e Oil Engine, July, p. 92.
Paired railcars for West Africa. (800 words & figs.)

1960 **621** .431 .72 (42)
e Oil Engine, August, p. 120.
High-powered trains for inter-city service. (1 500 words figs.)

1960 **621** .431 .72 (6)
e Oil Engine, September, p. 158.
Universal locomotives for East Africa. (1 500 words & s.)

1960 **621** .431 .72 (93)
e Oil Engine, October, p. 199.
Line-service Diesel-electric locomotive. (900 words & s.)

Railway Age. (New York.)

1960 **625** .241 (73)
ilway Age, July 18, p. 33.
TOFC tackles houschold goods. (400 words & figs.)

1960 **656** .2 (73)
ilway Age, July 25, p. 32.
Lasher probes transport future. (1 800 words & figs.)

1960 **625** .214 (73)
ilway Age, August 1, p. 18.
N & W has no hotboxes with flat-back bearings. (1 200 rds & figs.)

1960 **621** .431 .72 (73)
ilway Age, August 15, p. 20.
Progress Report : Hydraulics due for 61 delivery in U.S. 0 words & figs.)

1960 **656** .212 .4 (73)
ilway Age, September 5, p. 20.
Skates replaced by automatic retarder. (500 words & s.)

Railway Engineering. (Cape-Town.)

1960 **656** .25 (6)
ilway Engineering, July, p. 24.
Centralized train control on the Rhodesia Railways. 000 words & figs.)

1960 **656** .212 (42)
ilway Engineering, July, p. 34.
Marshalling yard uses radar, computers to sort 4 500 gons a day. (1 600 words & figs.)

1960 **621** .133 (6)
ilway Engineering, August, p. 26.
Diesl ejectors are being tested in E.A.R. Garratt locotives. (1 200 words & figs.)

1960 **625** .244 (68)
Railway Engineering, September, p. 30.
Heat leakage into fish trucks under operating conditions. (1 200 words & figs.)

1960 **625** .244 (68)
Railway Engineering, September, p. 32.
South African Railways' new refrigerator wagons. (1 200 words & figs.)

The Railway Gazette. (London.)

1960 **621** .33 (485)
The Railway Gazette, August 26, p. 251.
Swedish State Railways multiple-unit trains. (600 words & figs.)

1960 **621** .431 .72
The Railway Gazette, September 2, p. 274.
Rational developments of locomotive Diesels. (1 900 words.)

1960 **625** .232 (43)
The Railway Gazette, September 2, p. 276.
Lightweight coaches for suburban traffic. (800 words & figs.)

1960 **656** .2 (42)
The Railway Gazette, September 2, p. 278.
VINE (W.H.). — **Selling railway services in the North Eastern Region.** (1 200 words & figs.)

1960 **621** .431 .72 (6)
The Railway Gazette, September 2, p. 280.
Diesel locomotives for East African Railways. (1 600 words & figs.)

1960 **625** .232 (42)
The Railway Gazette, September 9, p. 302.
Miniature-Buffet car for British Railways. (900 words & figs.)

1960 **656** .225 (42)
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Combined rail-and-road vehicles for British Railways. (1 800 words & figs.)

1960 **656** .25 (42)
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